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ARTICLE I.

DURATION OF NORMAL HUMAN PREGNANCY.

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From time immemorial, writers on obstetrics and on forensic medicine in particular, have endeavored to determine the duration of utero-gestation in the human female. I should be extremely glad to settle this *questio vexata* in a manner as satisfactory and as convincing to others as I have to myself. But I do not flatter myself with any such notion of success. All I can hope to do is to add a few facts, from personal observation and reflection, towards settling this very important matter, to which my attention was directed, in a special manner, several years ago, when a very intelligent young lady engaged me to attend her in her first labor which she predicted to the very day. This had the effect of inducing me to devote particular care and attention to the investigation of the duration of normal gestation in women coming under my care, with what result I leave others to judge from the cases collected by me, to the number of four-

teen, in each of which the fruitful act of intercourse is pretty accurately known. And while endeavoring to show what is the duration of normal human pregnancy, the cases I give will help to settle other questions intimately connected with the matter under discussion.

The following questions are those to which I would draw particular attention, and endeavor to answer; for, it seems to me, that if we could solve them, we could readily determine the duration of utero-gestation:

1. Where does fecundation take place?
2. What time do the spermatozoa take to reach the ovum?
3. What time does the ovum take to descend from the ovary to the uterus?

These three questions are most important, yet exceedingly difficult to answer. The following, while interesting, are of much less consequence:

4. What relation does conception bear to menstruation?
5. Does labor set in exactly at a time to correspond with a tenth recurrence of menstruation if conception had not occurred?
6. Is sex dependent on the number of spermatozoa finding access to the ovum?
7. Is sex dependent on the time of conception relative to menstruation?
8. Is the first child carried to full term?

1. Where does fecundation take place?

A few physiologists have asserted that the ovum loses the power of being fecundated when it reaches the lower end of the fallopian tube; while a few others affirm that it is arrested and developed at the spot where the spermatozoa meet it. Both theories lack proof. Fecundation may take place while the ovum is still in the ovary; or during its transit along the oviduct at any point thereof; or when in the uterus. The two former propositions are proved by abdominal, true ovarian, and by tubal gestation. Fecundation is liable to occur at any spot between the ovary and the *os uteri internum*. But the precise place where it happens, in any given case of uterine gestation, cannot, of course, be determined.

2. What time do the spermatozoa take to reach the ovum?

The answer to this question depends on the place where the sperm cells and germ cell meet; and that, in turn, depends partly on the time of escape of the ovum from the ovary; and partly on the rate of motion upwards of the spermatozoa, and on the rate of motion downwards of the ovum. Bischoff demonstrated the presence of spermatozoa on the ovaries of animals killed a week after the congress of the sexes. Dr. Austin Flint, junior, saw them, *in motion*, on the surface of the ovary eight days after intercourse. Dr. S. R. Percy found them alive in mucus issuing from the os uteri of a woman eight and a half days after coitus. These facts prove that spermatozoids can and do live several days in the female generative tract. Bischoff's and Flint's discoveries demonstrate the distance to which spermatozoa can penetrate, but do not, unfortunately, determine the time they occupied in their upward course to the ovary. And Dr. Percy's discovery shows that although they may enter the uterine canal, they do not necessarily find their way to the ovarium, but are liable to be swept back by excess of secretion (catarrh) from the uterine canal. It is my opinion that spermatozoa may, under favorable conditions, reach the lower end of the uterine cavity; that is, may pass the *os uteri internum* in a few hours. I am also of opinion that they may not reach the ovary for ten or fifteen days after coitus.

3. What time does the ovum occupy in its descent from the ovary to the uterus?

This question is not more definitely settled than either of the two preceding. Physiologists appear to think that eight or ten days are *usually* occupied by the transit of an ovum from the ovary to the uterine cavity. If, as I suppose, the peristaltic motion of the fallopian tube be much more brisk about and during the time of menstruation than during the intermenstrual period, then an ovum may be propelled from the ovary to the uterus in two or three days in the former case; whereas, in the latter, it may require fifteen or sixteen days, as would appear to have happened in the sixth case of my table.

4. What relation does conception bear to menstruation?

They are correlated. I believe menstruation is dependent on ovulation. The maturation and extrusion of an ovum constitute

the stimulus to the menstrual flow. Ovulation and menstruation are simply cause and effect. When are ova discharged? They are discharged before and after, but chiefly during, menstruation. Usually the rupture of the Graafian follicle occurs during or about the end of the first day of menstruation. An ovum discharged before the onset of the menses, is generally swept away in the menstrual flood; when discharged during the flow, it will not reach the uterine cavity until the menses have ceased. This explains the greater frequency of conception following coitus held immediately after menstruation. The ovum fecundated is that which acts as the exciting cause of the menstruation imminent or just ceased. My cases show, also, that conception may take place immediately before as well as immediately after menstruation. When conception occurs just before the outset of the menses, the flow is either entirely arrested or so modified in color and quantity as to attract the woman's attention.

But conception may, and actually does, occur at any time between the menstrual epochs, as is proved by the American women, most of whom practice, I regret to say, the trick of non-submission to coitus for about ten days after menstruation, with the sole and criminal intention of avoiding conception and family, if possible; yet they are not always successful, as many discover to their surprise and chagrin. It is also proved by the Jewish women who are very prolific, yet are required by the Mosaic law to abstain (being considered unclean) from all intercourse, most especially from coitus, with the entire household for seven to fourteen days after menstruation; * * * "she shall be unclean two weeks according to the custom of her monthly courses."* "The woman, who, at the return of the month, hath her issue of blood, shall be separated seven days."† Case 6 of my table also illustrates this point, as well as shows how long an ovum may take to descend from the ovary to the uterus. While conception is not confined to the periods of menstruation, it is more likely to occur within a few days after the cessation of the menstrual flow, than at any other time. It is quite certain that there is a greater aptitude for conception, and that females expe-

* Levit. xii, 5.
† Levit. xv, 19.

rience stronger sexual desire, immediately before and after menstruation than at any other time; a fact well known to the ancient physicians, who frequently recommended, and with success, coitus immediately after menstruation as a cure for sterility in women. Raciborski affirms that the exceptions to conception taking place immediately before, during, and immediately after menstruation, are not more than six or seven per cent. "But it is certain that conception is much more likely to take place soon after they" (the menses) "have ceased to flow, or even just before their access, than in the intervening period; so that, in most instances, it would be most correct to expect labor at forty weeks and a few days after the last recurrence of the menses."*

5. Does labor set in exactly at a time to correspond to a tenth recurrence of the menses if conception had not occurred?

"The idea has of late years been put forward and sustained by direct observation, that in women whose menstrual function is regular, gestation will terminate at the tenth menstrual period after that upon which conception has ensued. Then, as the ordinary menstrual interval is about twenty-eight days, the ordinary duration of pregnancy would be a few days less than 280 days, varying according to the time occupied by the monthly flow."† This theory is negatived by cases 6, 7, 9, 11 and 14 of my table.

6. Is sex dependent on the number of spermatozoa finding access to the ovum?

Some writers assert that sex is determined by the number of spermatozoa; that when conception takes place just before menstruation, few spermatozoons enter the ovum, and a female child is born; that after menstruation, many enter and a male child is developed. I fail to see why only a few sperm cells should enter the germ cell before menstruation and many after that act. Where or what is the impediment to prevent as many entering the ovum before menstruation as after it? Cases 3, 4, and 7 of my table do not bear out this theory. Besides, twins at either time, of different sex, flatly contradict it.

The number of spermatozoids finding access to an ovum does

* Carpenter's Physiology, New American, from Eighth English Edition, page 910, *Note* 2.
† Wharton and Stillé Medical Jurisprudence, Second Edition, page 312.

not appear to play any part in determining sex. Mr. Newport ascertained that a too copious application of spermatozoa to an ovum is absolutely unfavorable to their action—will not fecundate at all. Others assert, perhaps with truth and reason, that a single sperm cell is sufficient for the purpose of fecundation. I believe very few are necessary. It is well-known that the introduction of a small quantity of seminal fluid just within the *sphincter vaginæ*, or, for the matter of that, on the vulva is all that is necessary, sometimes, for the purpose of impregnation; as some women have found to their cost. This very point was demonstrated in 1876, when Prof. Braun published three cases of pregnancy with intact hymen. In the first case, the aperture in the hymen barely admitted the uterine sound; in the third the opening in the hymen was a short and narrow slit. Prof. Braun ascertained that penetration did not take place in the first and third; that the semen was deposited on the hymen. Consequently the number of spermatozoa which could find access to the ovum must have been very limited indeed.

7. Is sex dependent on time of conception relative to menstruation?

Certainly not, as twins of different sex conceived before or after menstruation prove, and as my cases also show.

8. Is the first child carried to full term?

Some suppose not; others think the sex influences the duration of gestation a little; as for example, a female child is born, or apt to be born, a few days before full term; and *vice versa* with a male child. This idea does not hold good in either case. No matter what the sex, the first child is carried to full term, as my cases prove.

Finally, I would ask, What is the duration of normal utero-gestation in the human female? Is it nine calendar months? Perhaps so; but nine calendar months may mean 273, 274, 275, or 276 days. Is it ten lunar months, forty weeks, or 280 days? I do not believe so. Between ten lunar months or forty weeks, and nine calendar months there may be a difference of just one week.

It could serve no purpose beyond occupying valuable space, to heap up tables or collections of cases, as is too often done, giving

the minimum, mean and maximum duration of gestation. From all such collections or tables it will simply be seen that the majority of women are delivered between the two hundred and seventy-third and two hundred and eightieth day; that the mean duration of pregnancy is 275 or 276 days. Between the minimum and maximum duration, however, there may be the very great difference of forty days! "In a practical point of view, we may consider that the average duration of pregnancy is * * * about 274 or 275 days from the time of coitus, when this can be ascertained."*

The opinion entertained and long pondered over by me is, that the duration of normal utero-gestation in the human female is 275 days from the time the fecundated ovum takes up its place in the uterus to the outset of labor. Besides the cases coming under my personal observation, here given in the table, and strongly sustaining my opinion, I have been led to this conclusion on what, to many, may, perhaps does, seem inadequate data, but which to me appear absolutely irresistible and convincing; I mean the duration of the intra-uterine life of Christ, which was exactly 275 days or nine calendar months. We have His own words in testimony that He did not come to destroy nor to subvert the law, but to fulfill it to the very letter, which He did in every manner. I have often wondered, but am unable to explain, why it is I had never seen this fact mentioned in the chapters of works on obstetrics and forensic medicine where the attempt is made to solve the duration of pregnancy.

It may be fairly asked, and, no doubt, it will quickly occur to the reader to ask: How do you, then, account for such apparently great disparity in the duration of gestation in cases where only a single act of coitus took place at a known time? From the views, viz., that, first, spermatozoa may reach the uterine cavity within a few hours from coitus held immediately before or after menstruation, and fecundate an ovum which may have descended thereto during the menstrual epoch now imminent or just ended, as would seem to have happened in seven or eight of my cases; and, second, that spermatozoa must ascend nearly or

* Dr. Tyler Smith, *Lancet*, March, 1856, page 333.

even to the ovary, there fecundate an ovum which, in turn, must descend to the uterus: the ascent of the sperm cells and the descent of the impregnated ovum occupying jointly from ten to twenty days or more. These views will, I think, explain the seeming prolongation in the duration of certain cases of pregnancy resulting from a single coitus at a known time. Apparently protracted gestation is certainly more easily and more reasonably explained in this manner than in any other way. In all the cases of supposed protracted gestation, no evidence whatever, beyond a mere assumption, is adduced to prove that conception really took place at the time of the known coitus. Why is it assumed that, in such cases, conception followed immediately on coitus? Might it not so happen that the spermatozoa should travel all the way up to the ovary before meeting an ovum? And might it not also happen that when they did reach the ovary no ovum was matured for perhaps a few days after and was consequently unfit for fecundation? And then the fecundated ovum must come down to the uterine cavity. Take the sixth case of my table: The woman was absent from her husband for fifteen days after the cessation of her last courses. Yet the ovum matured at the last menstrual epoch did not reach the uterine cavity until the 27th of September, the occasion of the fruitful coitus. Were she, however, with her husband at the time of the cessation of her last menses, the duration of pregnancy would be set down at 288 days, instead of 272 days actual time. Besides this case, there is ample evidence to prove that fecundation may not take place for many days after a single known coitus. The whole trouble and error, in my estimation, lies in the absurd assumption, that because a woman conceives after a certain act of intercourse, she does so almost immediately. This is unreasonable.

The duration of pregnancy should be calculated, in my estimation, from the time the impregnated ovum takes up its place in the uterine cavity to the outset of labor. That period I believe to be, as I already said, 275 *days when perfectly normal.* Any case of labor before 275 days I would consider abnormal—premature. And we all know how very easy it it is, sometimes—what seemingly trivial causes will now and then determine the outset

TABLE OF THE DURATION OF HUMAN UTERO-GESTATION.

Case.	Menstruation began.	Menstruation ceased.	Labor began.	Duration of Pregnancy, in days, from end of last menses, or from coitus.	Number and Sex of Child	From beginning of last menses, to Labor, in Lunar months.	From end of last menses, to Labor, in Calendar months.	Remarks.
1	April 3, 1875.	April 6, 1875.	On the evening of Jan. 6, 1876.	274	1, male.	10 less 2 days.	9 less 1 day.	Married April 7, 1875, and first coitus took place that night. Believed she conceived from first coitus.
2	Oct. 7, 1875.	Oct. 10, 1875.	July 13, 1876.	276	1, male.	10 exactly.	9 plus 3 days.	
3	Oct. 17, 1875.	Oct. 20, 1875.	July 23, 1876.	276	3, female.	10 exactly.	9 plus 3 days.	
4	Nov. 19, 1877.	Nov. 22, 1877.	Aug. 25, 1878.	275	1, female.	10 less 1 day.	9 plus 3 days	
5	Feb. 7, 1878.	Feb. 10, 1878.	At 8 o'clock, a. m., Nov. 15, 1878.	277	1, male.	10 plus 1 day.	9 plus 4 days.	
6	Sept. 9, 1878.	Sept. 12, 1878.	June 26, 1879.	272	2, male.	10 plus 10 days.	9 plus 14 days.	Was absent from her husband before and at time of menses, and until the night of Sept. 27.
7	Dec. 12, 1878.	Dec. 15, 1878.	At 1 o'clock a. m., Sept. 14, 1879.	275	3, male.	10 less 5 days.	9 less 2 days.	Conception took place just before onset of a partial menstruation. The three days of partial menses are counted.
8	Dec 31, 1878.	Jan. 3, 1879.	Evening of Oct. 5, 1879.	275	2, male.	10 plus 2 days.	9 plus 2 days.	
9	Jan. 9, 1879.	Jan. 12, 1879.	Evening of Oct. 11, 1879.	272	2, male.	10 less 5 days.	9 less 1 day.	
10	Feb. 5, 1879.	Feb. 8, 1879.	Morning of Nov. 13, 1879.	277	5, female.	10 plus 1 day.	9 plus 4 days.	
11	Feb. 21, 1879.	Feb. 24, 1879.	Morning of Dec. 2, 1879.	280	2, female.	10 plus 4 days.	9 plus 8 days.	
12	Mar. 3, 1879.	Mar. 5, 1879.	Morning of Dec. 6, 1879.	275	3, female.	10 less 2 days.	9 plus 1 day.	
13	April 12, 1879.	April 15, 1879.	Jan. 16, 1880.	275	6, female.	10 less 1 day.	9 plus 1 day.	
14	April 25, 1879.	April 28, 1879.	Feb. 6, 1880.	280	1, female.	10 plus 7 days.	9 plus 9 days	Married May 1, 1879, and first coitus took place that night.

of labor a few days before full term. And any case happening after 276 days, I would consider due to the non-meeting and impregnation of the germ cell by the spermatozoa for some days after coitus.

Any special comments on this table are unnecessary. As a rule the day of labor is not counted in the duration of utero-gestation. But in the few cases where labor set in on the evening of any day, that day is counted in the duration of pregnancy. All of my fourteen cases are intelligent married ladies, in whom the function of menstruation is normal. The outset, duration, and cessation of the catamenia were accurately known in each case. Not one of these fourteen ladies could have the slightest object in deceiving me. The duration of pregnancy was calculated in the presence of each lady, from the data furnished by her for the sole and plain purpose of finding the date of labor. The last day of the menstrual flow, that is, the day it ceased, is not counted in the duration of utero-gestation, because the fruitful coitus did not take place until the night of the day on which the flow ceased. The few cases where menstruation had terminated one or more days before coitus was possible, are noted in the table. These are, it will be seen, cases 1, 6, and 14. Case 7 is positive, from well-known symptoms and sensations, that she conceived from a coitus held just before the outset of the menses, which were not entirely, although very nearly, suppressed. The three days of very slight menstruation are included in the duration of gestation. Her labor began 275 days from the fruitful coitus, and five days before the tenth recurrence of the menstrual epoch. Nine of the fourteen cases show that labor set in, almost to the very day, at a time to correspond with a tenth recurrence of menstruation. But in each of these nine, it is most probable that the coitus which took place the night following the cessation of the menses, was the fruitful one. This accounts for the close coincidence of the two. The remaining five show quite a disparity in time between the two facts; but this difference can be explained easily in cases 6 and 14. Case 14 is a primipara, the child a female; yet, from first coitus to labor is just 280 days. In cases 1, 2, 4, and 5, being primiparæ also, the child, though of different sex, was carried to full term.

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ARTICLE II.

SOME POINTS IN DIPHTHERIA. By C. J. LEWIS, M. D. Read before the West Chicago Medical Society, February 14th, 1881.

Mr. President, Ladies and Gentlemen:—That inexorable governess, Fashion, rules no less in medicine than in the æsthetic arts, in dress or in religion. She has formulated dogma for the votaries of Hygeia to amplify by their life work, with a special request to uplift their "Brazen Serpent" with a zeal and energy second to the devotees of no creed, of no religion, nor of any philosophic bias. Thus we have had a school of humoralists, of solidists, and lately, of vitalists.

For the last twenty to twenty-five years, the creed for diphtheria has been its bacterial origin. This dogma has either been more enthusiastically indorsed or passively acquiesced in by the profession, than any other creed that has ever been formulated in medicine. Upon this substructure, composed of spores moving hither and thither with remarkable alertness logically, is constructed the doctrine of contagion and sepsis. If the basic substance of this substructure—pseudo-membrane—is inadequate to build it up *from within*, and there should arise good reasons for believing that it is largely formed by accretion, as it seems the experiments of Drs. H. C. Wood and Henry F. Formad indicate, then the theory of contagion and sepsis falls prostrate at our feet.

Jacobi says of the poison of diphtheria, "that it behaves in the same manner as the acarus scabiei: that this poison is certainly transmitted by spoons, glasses, handkerchiefs and towels used by the patients. * * Moreover, the nature of the affection is still little understood, and the question of a local or a general beginning of many individual cases of the disease still remains a mooted point." Whilst Jacobi is somewhat skeptical as to the germ origin, he, in the above quotations, expresses a belief that the disturbance set up in the human organism by diphtheria is the direct result of an entity—a poison that can be seen, handled,

and, as many can testify concerning the acarus, be felt. According to this theory, this mythical something, which is so restless, so turbulent, and, withal, so fleet of wing, after multiplying a million fold diffuses itself in or becomes intermixed with the atmosphere, and from thence is lodged upon clothing, sores, or furniture in the adjacent areas of its first attack, as well as to pierce the mucous membrane of the mouth and fauces as the bacterate air is respired, and soon becomes commingled with the blood—its natural abode—where it generates other untold millions, resulting in the so-called blood-poisoning.

In this manner the poison is absorbed into and contaminates the system from the lungs, a sore on the skin, or, preferably, the mucous membrane of the mouth and fauces. But what is singular of this *poison*, this *entity*, this *thing of dread*, is, to quote Jacobi again—"that the diphtheritic membranes which are swallowed are rendered innocuous by the 'gastric fluids.'"

This intelligence and wisdom of the "gastric fluids," to say the least, is remarkable in that it "renders innocuous" the poison of diphtheria, having its nidus in the membrane which the patient may swallow—while such a guardian angel stands by, as a pastime; when the same "fluid" fails to "render innocuous" strychnia, arsenic, veratrum, or any of the other known poisons. I am at a loss to know how this author can see the diphtheritic process enter the blood by the lungs, through a sore, or an abrasion, and utterly fail to observe its entrance into the vascular system by the open mouth of the absorbents in the primæ viæ. Relying upon my own observations and the experiments of recent observers, I am of opinion that diphtheria is not produced by germs, nor do I believe it to be contagious.

From what has now been said, I am prepared to turn the powerful enginery constructed by Jacobi for the express purpose of demolishing the arguments of the bacterial philosophers, against the framers, upholders and promoters of the contagion theory, namely: "The constant repetition of the same statements does not render them any the sounder." * * * "For it is certainly very apparent, here, too, that the nature of the diphtheritic poison has been postulated in the interest of the contagion theory."

To me, diphtheria is a pyrexia,—a disease having a special

predilection for evolving its inflammatory products in, or upon, the mucous membrane of all of the upper portions of the respiratory tract. This pyrexia or inflammatory fever is, in my judgment, closely allied to rheumatism; but having more of adynamia than rheumatism, and, when epidemic, it followed periods when rheumatism had prevailed. Mackenzie says that "The contagion lives under ordinary atmospheric conditions, but it is probable that dampness favors its development." Damp weather is likewise thought to favor the development of rheumatism. Then, again, pain is a prominent symptom in diphtheria. The pain caused in the fauces by attempts to swallow liquids is out of all proportion to the apparent local lesion. About four-fifths of my cases had as a first symptom, *soreness and stiffness of the muscles of the neck.* Mackenzie says there is at the outset stiffness of the neck; Dr. A. B. Woodward, of Pennsylvania, says that "almost every case has been taken with a stiff neck;" and a Dr. Hitchman, of New York, mentions stiffness of the neck as a symptom. These three are all whom I have been able to find, who give soreness and stiffness of the muscles of the neck as a symptom in diphtheria.

But the action of the diptheritic process upon the heart and blood vessels is almost a perfect prototype of the rheumatic process. In grave cases, the heart beats in diphtheria very fast at first, then slowing and intermitting, towards the close in fatal cases, it beats very feeble and fast. This is very like the action of the heart in rheumatism or aconite poisoning. Mackenzie says that the pulse is very weak and compressible, and often either exceptionally rapid or exceptionally slow, while the first sound of the heart is muffled and devoid of tone." But Jacobi has so aptly described the behavior of the heart under the diphtheritic poison, which is such a direct parallelism to rheumatism, that I beg your indulgence in quoting the paragraph, namely: "The result, of course is considerable weakness of its muscular tissue, evidenced by the formation of local (Beverly Johnson) thrombi; general sluggishness of the circulation, dyspnœa, muffled heart sounds, a cool and pale skin, and sudden death, preceded by a very feeble and frequent, sometimes, however, by a very slow pulse. Aside from this, there are actual cases of

endocarditis during the course of diphtheria, or convalescence therefrom. It affects especially the valves, and among them particularly the mitral. It is characterized by high fever, precordial pain, attacks of syncope, and a systolic murmur." So we see that both of the above cliniciens undeniably hold that the heart failure in diphtheria is primarily due to septic forces. It seems to me, however, that if we would be in close accord with the clinical study of diphtheria, that this adynamic state has a more rational explanation in the rheumatoid condition of the heart, the anæsthesia of the vaso-motor nerves, and the consequent hyperæmia, especially of the uriniferous tubules of the kidneys, than in a specific sepsis or blood-poisoning. For it can but be hurtful to the granular spot, or morphological unit, of each and every cell composing our bodies to have blood offered to it for nutrition, which is heavily laden with detritus, resulting from the vastly diminished exhalation, or lessened functional activity of the hyperæmic state of the kidneys, skin, and lungs.

There is local hyperæmia in the upper respiratory tract, evidenced by the deep livid hue of the mucous membrane, which, on account of the anatomical relation of the blood vessels, is made very apparent. Through the inflammatory process the dilatation of the walls of these vessels occurs on the side where there is the least resistance allowing in this manner a greater freedom for exosmosis towards the mucous membrane of the inflammatory *precincts*, namely, the *diphtheritic membrane*. The redness of the fauces is soon superseded with lividity, at which time the accompanying symptoms make it possible to diagnosticate diphtheria. This *livid color* of the faucial mucous membrane, according to my observation, is characteristic of diphtheria before the appearance of the membrane. Dr. Goss, of Tanner fame, in describing diphtheria, says, "The fauces look inflamed, they are of a dark mahogany color." And a Dr. E. G. Jones, in a journal, mentions lividity of the mucous membrane of the fauces, tonsils, and pharynx as a symptom. Jacobi says there is hyperæmia.

POINTS.

The basic substance of the diphtheritic membrane is eliminated from the blood, if diphtheria is produced by sewer gas or decom-

posing organic matter. But there seems to be good reason for believing that the pseudo-membrane is largely formed by accretion, and wholly so, so far as it is composed of germs. Then a failure to prove that diphtheria springs *de novo* from bacteriæ, renders the theory of contagion and sepsis untenable.

Diphtheria is a pyrexia. It is a rheumatoid adynamia, with anæsthesia of the vaso-motor nerves, and consequent hyperæmia of the uriniferous tubules and capillaries, followed by a diminished exhalation, or functional activity of the kidneys, skin and lungs. The great emunctories thus lagging in their scavenger work, there comes coincidently over the person a malaise.

Lividity of the mucous membrane of the fauces, tonsils, and pharynx, with soreness, swelling and stiffness of the muscles of the neck, are marked symptoms in diphtheria. The diphtheritic membrane, being an exudate to the surface by the outward free exosmosis, becomes very soon a nidus for bacteriæ.

I will here describe two cases; one, a so-called blood-poisoning, the other, a case of the sthenic type.

At the bedside of a well-nourished boy, aged about 2½ years, in mid-winter, I find him lying on his back, with intense pallor of the face and lips; large drops of cold sweat on the forehead; the hands and surface of the body yielding a cold and clammy feel; pulse 180 per minute; exceedingly feeble; swelling of the glands of the neck, with soreness and stiffness of the lateral muscles of the neck; tumescence and lividity of the mucous membrane of the pharynx, tonsils and fauces, and soreness of throat. This patient did not develop a membrane in this illness. The pupils were widely dilated, and he was profoundly indifferent to all that was going on around him, excepting that he complained of pain when efforts were made to move his head. This little patient had come from comparative good health to this condition in about twenty hours after having been unduly exposed to cold.

The sthenic case—an adult, was delivering coal from the cars on a cart to families, a November day, when the weather was, according to the paragraphers—a blizzard. While loading he sweated, and cooled when riding. He complained nearly all day of having chilly sensations, followed by flushes of heat, and as the day wore on, his neck stiffened and his throat became sore. At

night his throat was parched, was thirsty, and restless from "fever." The following day finds him with all the symptoms intensified. When I arrived at 5 P. M., his skin was dry, pulse 120 and hard, face flushed, neck stiff, with but little swelling of the glands of the neck. The tonsils and back of the pharynx were covered with pseudo-membrane, and the adjacent mucous membrane was of a livid color. The tongue was heavily coated with fur. He complained of frequent micturition.

Treatment.—The arm of the physician is not much better than though it were palsied, if he is unable to bear in his open hand the needed remedies fresh from his armamentarium to either dispel from, or to neutralize in his patient the morbific forces that oppress him. After settling in his mind what these forces probably are, he systematizes the indications. The administration of remedial agents without well ordered plans would be tentative—empirical.

The first indications in diphtheria are to lessen the inflammatory engorgement of the mucous membrane in the upper respiratory tract and kidneys; and, second, to restore the functional activity of the skin and kidneys.

A very good plan to meet the first indications, and in my hands a very successful one, is to lessen the irritability with opium, to arrest the tendency to dilatation of the capillaries with small doses of belladonna and aconite, and to modify the epithelium with small doses of potassic chlorate. These drugs may be combined for a child aged 2 to 3 years, as follows:

℞. Tr. Aconit. rad.....gtt. x.
Tr. Belladonn.....gtt. xx.
Tr. Opii deod.....gtt. xxx.
Potass. chlorat.....ʒi.
Aq. dist.....ad ...ʒiv

M. S. Give a teaspoonful every hour or two.

From 10 to 15 doses of this prescription would be given in 24 hours.

In addition to the above I usually give something like the following:

℞. Sod. salicylat.....ʒi.
Spt. nit. dulc.....ʒij.
Syr. tolu.....ʒxiv.

M. S. Give a teaspoonful every two hours.

Locally on the swelled glands of the neck I apply Ol. camph. U. S. P.

Jacobi, on page 197, relates having treated what he called "diphtheritic fever" successfully with salicylic acid and bicarbonate of sodium. This points very strongly to a rheumatoid state.

I treat the sthenic and asthenic forms of diphtheria alike; excepting that I maintain an increased opium influence in the asthenic variety for from twenty-four to thirty-six hours.

The improvement in the condition of the patient is noted by the slowing of the pulse; by the gentle and uniform moistening of the skin; a thinning, and the final removal of the exudate in from 30 to 50 hours; a gradual return of the arterial hue of mucous membrane of the fauces, tonsils and pharynx; relief from pain, diminished thirst and normal urine.

ARTICLE III.

ON PHYTOLACCA DECANDRA. By W. C. WESTERFIELD, M.D.

In these days of new application of old remedies, and of restoration of the obsolete, I wish to introduce to the profession a long neglected yet highly virtuous member of our Materia Medica. There is but little history connected with Phytolacca Decandra, and what there is dates far back in our country's history in medical literature, with perhaps a few exceptions. We learn that at one time it held a high place as a remedial agent in the South, and especially in the Carolinas. Our oldest professional men will tell you that they have once heard of it as doing wonders in a curative way, but that it finally fell into disuse. Now, it is this neglect which I wish to inquire into, and if possible, explain as to how it came about.

In the year 1859, I wrote an article which was published in The *St. Louis Medical Journal* upon this subject, and which attracted quite an interest at the time; but the foot of war fell upon it, and it was tramped out of sight. At that time I wrote more from the experience of my father, who, in an active practice extending over a period of nearly forty years, had used it

continuously. Since that time I have had recourse to it more than to any other remedy of its class, and can fully verify the opinion of it held by my predecessor, for it seldom fails to accomplish the object for which it is used, as for certainty of action it will take rank with the most unfailing of our remedies. The question then presses for an answer, Why has it fallen into disuse? A few years ago, and shortly after coming to Chicago, I desired to use the remedy in question, and procured it from one of our best druggists, but found that it did not have any impression upon the disease. I prescribed the fluid extract. I then had recourse to the freshly dug root from near the city, prepared a saturated tincture, feeling satisfied that now it would act as in former times, but to my surprise it did no such thing, which was as unexpected as if I had failed with quinine in an intermittent. I now determined to procure the roots from the same locality—where both my father and I had gotten it in former years—in the South, where, in protected places, the sun shone upon it from February to November. From this I carefully prepared a tincture, and again made an attack upon the same cases in which I had formerly failed, and with the great satisfaction of seeing it manifest its peculiar action within a few days, and shortly after, completely eradicate the diseases in question. I then ordered a quantity of the same roots and continue to use the remedy, with the satisfaction of seeing its old-time virtues still present.

Now, after this, and many subsequent proofs, I feel that the question as to its disuse has been solved, and that climate—not the remedy—is the cause of its failure in the hands of the physicians in the North. The perfumer must use the flowers from semi-tropical regions. Many of our vegetables deteriorate when transplanted from a warmer climate, and why not phytolacca decandra? In the Southern States this plant assumes gigantic proportions as compared with that grown in the North. With such diminution in growth, we may infer a diminished virtue, aside from the test applied to it.

The plant is too well known to enter into an elaborate description of it, but one thing I wish to mention, with all due deference and modesty, that which I have not seen mentioned elsewhere. My father and I recognized two varieties of this plant.

It may have been the conditions of growth, or the peculiarity of location—yet the two are so distinct as to merit mention at least—not botanically, but in their general appearance. One is a tall, tree-like plant—in some specimens twelve feet in height—flowers few, fruit small and sparse, main stalk and branches comparatively slender, and of a light green color. The other, and the one preferred, is more compact in general appearance, full, dense foliage of a dark-green color, fruit large and abundant, main stalk and larger branches of a deep, rich purple. The root, the part used, is thick and fleshy, abundant with starch and mucilaginous matter of a sweet mawkish taste, tardily but decidedly pungent to the mouth; a peculiarity, by the way, not found in the fluid extract nor in the root of this climate. It is best gathered in November, and must be carefully dried in the shade. Dampness is fatal to it, fermenting the starch, and for this reason it will not keep over until the following season, and that found in the drug stores is generally inert for that reason. The liquid after digestion, should never be evaporated except in vacuo.

The indications for its use are varied, fulfilling, as it does, the want so much felt in that class of remedies known as alteratives.

In obstructed or sluggish glandular action it may be used with excellent effect. This is especially true of all liver disorders. Also in all eruptive or desquamative skin diseases. I have seen some of the most obstinate and long standing of this latter class completely eradicated within a few weeks' time, after having resisted every known remedy in the hands of some of our best physicians. In rheumatism, too, just after the acute stage has been passed, and especially in the chronic form, it has done much service. In scrofulous diseases it may be used from the outset of the first symptoms, especially in the eruptive kind.

One peculiarity I must mention, which occurs after its use for eight or ten days, and that is, there appears an eruption upon the breast and back—sometimes on the face—about the size of millet seed. This, however, disappears in a short time, and with it, eruptions of skin diseases. This is often the process of cure, yet it will occur without this phenomenon, as it does not occur in all cases.

As corroborative of its effect upon glandular troubles, I will

mention the fact that its effect upon irritation of the ovaries, with uterine complications, is most pronounced, especially where there is a tendency to hysteria. I have also seen, from an article by one of my father's former pupils, that he claims almost specific virtues in it, in threatened abscess of the mammary glands, in the beginning of lactation. I have had a similar experience, also in a case of irritation of the ovaries in a recent case which yielded within a week's time. In my father's practice a favorite combination was phyto. decan. and guaiac. In some cases, however, the latter was found to be too stimulating, and was replaced by pipsissewa, which proved to be an excellent combination. I now use it in connection with salicylate of soda, especially in preventing transition from acute to chronic. But, given alone, in as full doses as can be well borne, the phyto. decan. will be found to be an excellent remedy in all forms of subacute and chronic rheumatism. It has been recommended in syphilis, and in syphilo-dermata in connection with mercury, it has done efficient work, and seems to facilitate a cure in all forms where mercury is used.

In discolorizations of the skin, termed blotches, in deposits of yellow "bilious" pigment, and in acneiform pimply skins, it has proven quite efficacious. The manner of administering it is to give a teaspoonful three times a day, gradually increasing to two teaspoonfuls, in a little water. It sometimes produces nausea, if given in full doses at first. In this case the reduction of the dose, or the addition of tr. gent. com., but sometimes nothing less than a cessation for a time, will suffice. Yet, with some, large doses are well borne. A gentleman recently took half an ounce, four times a day, for removing pimples from his forehead, with the effect of a free purgation only, and the removal of the eruption within a week.

I could mention many cases of cure and of beneficial results, but will not at this time. What is here written is for the purpose of enlisting others in a trial of the remedy. There are given here only a few hints as to its field of usefulness, hoping that others more competent may find, as I have, that in phytolacca decandra we have a remedy which may be depended upon.

ARTICLE IV.

CASE OF SPONTANEOUS ANTE-PARTUM HÆMORRHAGE—SLIGHT SYMPTOMS PROPORTIONATE TO AMOUNT OF BLOOD LOST.

BY G. FRANK LYDSTON, M. D., House Surgeon Charity Hospital, N. Y.

The patient, K. S., is a primipara, and had always enjoyed excellent health previous to pregnancy. Is a robust woman, twenty-four years of age, and apparently in the best of health. There is no history of venereal disease, or intemperence, but patient states that she has had leucorrhœa to a slight degree at times. The date of last menstruation, was February 22, 1880. Patient began to have gastric disturbances about the middle of March, and this has persisted up to time of labor, causing considerable annoyance, but with no apparent deleterious effect upon her general health. States that she has passed less urine than formerly. No other trouble was manifested until Oct. 1st. On this date, at about 10 A. M., patient had a slight attack of syncope, consciousness not being completely lost, but patient being compelled to lie down. She stated that she had caught a severe cold, and felt faint and dizzy. She appeared to have a slight coryza, and the surface was cold, being covered with a cold perspiration. None of thesymptoms, however, were especially marked. No pain whatever was complained of. Patient was ordered to bed, and gr. x of Dover's powder administered, and, on the following morning she arose feeling quite well. On Oct. 3d, at 3 P. M., being the third day after trouble above mentioned, patient began having slight pains, but said nothing about them, until 6 P. M., at which time I was called and found os fully dilated. No presentation could be felt. At 6.55 membranes were ruptured and child, descended in pelvis, the breech presenting in R. D. A. position. The lower limbs and breech were delivered at 8 P. M., and there being some delay in delivery of head, it was extracted. The placenta was retained until 9 P. M. when it was removed by hand. The child was dead, and the epidermis had become macerated so that it came off readily in large patches, showing that death had

occurred several days before labor. At the time the breech engaged in the pelvic brim, a small soft mass was felt protruding by its side, and posteriorly. This descended, and was expelled simultaneously with the head, proving to be a firm clot, evidently several days old, and sufficiently organized to retain its integrity under a quite forcible stream of water. It was found to weigh 23½ oz. av. No definite cause for this hæmorrhage could be discovered, although the placenta appeared to be slightly waxy, not being however examined microscopically. An autopsy was held upon the child, but nothing was discoverable, save a small amount of amyloid deposit in the liver.

The patient vomited a greenish fluid shortly after delivery, but said that she felt better as a consequence. She manifested no untoward symptoms subsequently, and was convalescent on 10th day.

The case appears rather peculiar and somewhat interesting, in view of some of the facts above mentioned. Here was a woman in perfect health apparently, who suffered from a profuse accidental hæmorrhage, coming on with no evident exciting cause. She was perfectly quiet at the time, if, as I infer, the slight attack of syncope which she had several days before labor, was the result of loss of blood. Although of a full habit, it is singular that the patient could lose such an amount of blood and present such slight symptoms. There may have been syphilis in the case; the slight waxy changes in placenta, and in the liver of the child, may have been the results of that disease, still the mother had neither history nor evidences of it. This would not exclude syphilis, however, as the father may have been at fault, as is now pretty generally held in regard to hereditary syphilis. This waxy change existing, it is possible that the retching and vomiting which occurred on the morning of the attack of syncope, caused a partial placental detachment, with hæmorrhage as consequence. It is remarkable that so large a clot, acting as a foreign body, should not bring on labor immediately, rather than in several days thereafter.

ARTICLE V.

A POINT IN THE TREATMENT OF HIP JOINT DISEASE.

By NORMAN H. CHAPMAN, M. D., M. S., late House Surgeon to the Philadelphia Orthopædic Hospital, etc.

The old plan of treating coxalgia by long continued rest in bed with weight extension, while it is correct in principle, is at the same time a great tax upon the general health of a patient. Persons of a naturally strong constitution may, under proper conditions, be put to bed for a considerable period and not overtax their powers of endurance, but with the average victims of hip joint disease it is highly prejudicial to confine them to bed for a longer time than is absolutely necessary to get control of the acute inflammatory symptoms. The condition of the general health bears such an intimate relation to the onward progress of the disease that it should receive every possible attention.

During the first stage of this affection when the joint inflammation is acute, there is unquestionably no better mode of procedure than by giving the parts rest in bed, separating the articulating surfaces by weight extension, and the local application of croton oil, the hot iron, or some other powerful counter-irritant. This plan, however, must not be persisted in too long. In fact just as soon as the acute inflammatory symptoms have been placed under control, it is good surgery to get the case up and about, keeping it as much as possible in the open air. Out-of-door exercise and the liberal use of such a tonic and dialectic regimen as will best tend to build up and invigorate the general health should be encouraged. No particular which tends to elevate its general tone is beneath consideration.

The value of early getting a case of hip joint disease out of bed and into the open air was very clearly set forward a few years ago by the advocates of the treatment of such cases by means of a high heel and sole upon the well side, together with a heavy mechanical appliance attached to the affected limb. The principle involved in this plan of treatment—*i. e.*, that of swinging the limb—is a good one, and the point to which I desire, at

this time, to call your attention is the ready means by which it can be carried out with the aid of a fixed dressing and a pair of crutches.

The mode of applying the fixed dressing referred to is simple. The leg of the affected side is flexed upon its thigh to a little more than a right angle, and is then encased in either a silicate of soda, plaster of paris, or glue and acetate of lead permanent dressing. After the dressing has been allowed to harden it is cut open on one side, and should be provided with shoe-hooks, or eyelet holes and laces, so that it can be removed at will. During the day the patient wears the fixed dressing and walks about upon crutches. The foot of the affected side does not touch the ground, the limb swings, and the combined weight of the lower extremity and dressing keep up constantly a sufficient amount of extension to prevent the articulating surfaces of the joint from rubbing against each other. During the night, when the patient is in the recumbent posture and the influence of gravity is removed so that no extension is produced, the fixed dressing should be removed and a weight extension apparatus applied. For this purpose the Morton extension apparatus* is very convenient, as it is quickly taken off and re-applied. Weight extension by means of the adhesive strips answers every purpose, however, when the Morton apparatus is not at hand. The ankle knot may also be used, and is frequently all that is required for the over-night extension.

There have been a variety of braces and mechanical appliances brought to the notice of the medical profession for the treatment of coxalgia, and each from time to time have had their especial advocates. While I do not in the least deprecate the use of such apparatus—and especially good is the one made by Messrs. D. W. Kolbé & Son, of this city,—still they are all (that is those which are of any use) far too expensive to be employed by the general practitioner in the lower walks of life. The call is for something which does the work of a costly extension apparatus, and is at the same time within the reach of all. The fixed dressing which I have described would seem to fulfill this indication. It is simple,

* Surgery at the Pennsylvania Hospital, P.

comparatively inexpensive, and from abundant hospital experiment has been found to be equally efficient with the most approved methods of treatment by mechanical apparatus now before the profession.

PHILADELPHIA, March, 1881.

ARTICLE VI.

RESPONSE TO THE TOAST "DENTISTRY AND DENTAL EDUCATION—ITS PAST, PRESENT AND FUTURE, AS RELATED TO MEDICINE," at the Alumni Association Banquet, Rush Medical College, February 22, 1881, by W. W. ALLPORT, M.D., D.D.S., of Chicago.

I hardly know how to respond to the sentiment just read. "Dentistry and Dental Education—its Past, Present and Future, as related to medicine," contains, as the lawyers would say, several "distinct counts," either of which gives rise to more thought than can well be expressed in the time it would be proper for me to occupy on the present occasion. Contrary to the popular notion, dentistry is not entirely of modern origin. Its history dates far back into the centuries.

To respond fully, therefore, to the sentiment proposed, I should be obliged to trace carefully and consecutively to histry, both ancient and modern, and assume to be a prophet and foretell its future.

With facts at hand and time to do it, it is not a difficult task to write history; but it is always a risky business to venture upon prophecy.

As we are far more interested in the present and future of dentistry than in the far-off past, I shall be pardoned, I trust, Mr. President, if I but briefly allude to its early history, and confine what I may say to more modern times; and instead of predicting the future of dentistry, I will state what I think it ought to be, trusting that what should be will be.

Of the early history of dentistry we know but little. That it was practiced at a very early period is fully proven by the facts that teeth well-preserved from gold fillings have been found in

the mouths of mummies, and also that artificial teeth, mounted upon gold plates have been discovered in the monuments of the Egyptians.

We are told that the ancients practiced it as a specialty in medicine. But if so, its practice—like that of surgery—seems to have fallen into the hands of mechanics at a later period.

During the latter part of what is known as the middle ages in Europe, surgery, as you are aware, was practiced by barbers, by the advice and under the direction of physicians; and it will hardly do to suppose that at this time dentistry was of higher rank than surgery.

Soon after this, or cotemporary with the period mentioned by medical writers as the revival of surgery, the first steps were taken toward modern dental surgery; and associated with the dental literature of those times stand the names of Eustachius, Fallopius and Paré, known to have been among the first, if they were not the very first, surgeons and writers of their times. In fact, it is owing to these great men of that day that surgery, whether general or special, was first placed upon a scientific and reliable foundation of dissection. Later, other medical men wrote more or less upon the anatomy, diseases and treatment of the teeth. Prominent among these was John Hunter, up to whose time England or the world had not produced so great a surgeon. I mention these things to remind you that the writings upon the teeth up to about the last of the eighteenth and first of the nineteenth centuries were by anatomists and surgeons, and, I will add, that they treated more of the structure, functions and diseases of the teeth than in giving any practical direction as to their treatment when diseased.

As the structure and functions of the teeth became better understood, and their importance to a healthy condition of the body more fully realized, medical men began to appreciate the importance of their preservation. But class influence, which has always ruled so strongly in European countries, and placed the ban of social ostracism upon all who engage in hand labor, may be assigned as one reason why practical dentistry did not receive its first great impulse from those who did so much to enlighten the medical profession as to the structure of the teeth and their diseases.

Dental operations at that time, whatever they may have been —like the rude surgery of a century or two before—seem to have been practiced as an art; the latter by barbers, and the former by jewelers and smiths. Dentistry in those days consisted very largely of making artificial teeth.

During the latter part of the eighteenth century, the art began to be practiced in America. As it proved to be remunerative for the services rendered, and as muscle and brain enter into a more equal contest for respectability in America than in Europe, our country became the most fruitful field for the development of practical dental science. Americans, always quick of perception, soon discovered that diseases of the teeth could not be intelligently and successfully treated without a knowledge of their anatomical structure, as well as of their surroundings; and, like the barber-surgeons of whom I have spoken, they began to study anatomy. Some even ventured so far upon the domain of medicine as to acquire a limited knowledge of physiology and pathology, and, with the purchase of a few secret prescriptions, they assumed to be and the people dubbed them as "doctors." As the need for a more scientific education became apparent, medical men began to engage in the practice of dentistry, both as operators upon the natural teeth and as makers of artificial teeth. From this point, especially in our own country, the science and practice of dentistry rapidly developed. Dental magazines and text-books were published, dental associations and colleges were established, and soon the superior skill of American dentists became so generally acknowledged that their services were in demand in nearly all the countries of Europe.

When dental colleges were first established, dentistry consisted mainly in the cleaning and extraction of the natural teeth, in the treatment of inflamed or diseased gums and in filling what would now be regarded as the simpler forms of cavities; also in mounting artificial teeth upon gold and silver plates, in the setting of pivot teeth and in regulating the simpler cases of malarranged teeth. At that period, extraction was the approved treatment for teeth with exposed or aching pulps, abscess of roots or absorbed sockets. *Now*, not only teeth with exposed but dead pulps, abscess of roots, atrophied surroundings and necrosed jaws

are regularly and successfully treated and saved. In no corresponding period of time have the improvements in surgery been so great as during the present century, and in no department of conservative surgery have they been so emphasized as in the treatment of diseases of the teeth and mouth; and to my calling must the credit of this improvement be mainly given. *Now* to adopt extraction as the rule of practice in such cases would be considered mal-practice.

Artificial teeth are now mounted not only upon gold and silver plates but upon at least ten different bases, of various degrees of applicability and usefulness in the cases requiring substitutes —each requiring an entirely different manipulation and mode of treatment. In order to bestow the greatest benefits of the art, a thorough knowledge of making and applying these various kinds of work is absolutely essential.

In addition to the great improvements in the setting of artificial teeth, as a branch of mechanical dentistry, artificial fixtures are now so constructed as to be far more generally useful in the treatment of cleft palate than is the surgeon's knife. These improvements are but indications of the advance in all directions in practice.

In the earlier days of our dental schools, so little was embraced within the practice of dentistry that a two-years' course of college instruction seemed sufficient to qualify students to practice in the two departments at the standard then maintained. But with the improvements and expansion thus far made, it is no longer possible. There is enough now embraced in either department to engage the entire time and talent of any one individual, and the greatest excellence can only be secured by a division of practice. Those whose tastes and talents best fit them for mechanical dentistry should pursue that as a branch of art, and give it their exclusive attention; and those who practice dental and oral surgery should pursue it as a branch of medicine, and educate themselves accordingly. To this division of practice the objection is urged that the two departments "lock and inter-lock" so intimately that the separation is not practicable. No doubt patients would find it more convenient to receive the mechanical and medical treatment from

the same person. So, too, it would be more convenient for the afflicted to have their limbs amputated and artificial ones supplied by the same practitioner; or to have the otologist treat the ear and furnish ear-trumpets of his own manufacture. But experience has proven that patients are best served by receiving medical treatment from medical men, and manufactured articles from mechanical artists.

The same principle holds good, and must hold good, in the two departments of dentistry.

An accomplished mechanical dentist must now not only understand the nature and manner of manipulating the various materials I have mentioned into plates for artificial teeth, but he must be so skilled as a mechanic that he will be able to adapt these materials to the requirements of the case in hand in such a way that patients will derive the greatest benefit possible from artificial teeth as masticators. He should be so versed in art that he can adapt them to the face of the patient—in size, shape, color and position in the mouth—so perfectly as to conceal the fact that they are not natural; and so fully should he understand the essentials to correct and easy enunciation that they will act as aids instead of impediments to speech, as is now too frequently the case.

The apprenticeship to an ordinary trade is not less than three years, and it can hardly be claimed that less time should be devoted to acquiring this most difficult art than is spent in learning to be a blacksmith or a carpenter. Whoever pursues the calling properly will have no time for the practice of medicine in any of its branches.

About the same degree of anatomical knowledge should be required of the mechanical dentist that is expected of the painter, sculptor or maker of artificial limbs, and more than this is scarcely necessary.

I have now, as concisely as possible, given you a general idea of the history and present status of dentistry; and I wish to say, in as emphatic a manner as I can, that it is to our dental colleges, and to the arduous and self-denying labors of the teachers in those schools, more than to any other cause, that dentistry owes its present honorable position in the community and its standing

among the sciences. Each succeeding year the teachings in our dental colleges are becoming more scientific, reaching farther into the realm of medicine; and still they claim to cover but a portion of the science in their teaching. In proportion as students are inclined to the study of medicine are they disinclined to practice in mechanical dentistry. Not only is it becoming distasteful to this class of practitioners, but they are dissatisfied with confining their operations exclusively to the teeth. Gradually but surely are the best medically educated dentists reaching for and bringing within the scope of their practice all operations and treatment not only of the teeth but of the jaws and oral cavity, and owing to their great familiarity with the diseases of the mouth and their habitual use of the delicate instruments required, it is fitting that medically-educated specialists in dental and oral surgery should control this department of practice. The ease and accuracy they acquire in operating about these parts could not be possessed by the general surgeon.

Any treatment for arresting disease is legitimately a branch of medicine, no matter whether it be pills, powders, the surgeon's knife, the cautery or materials for filling teeth. All are equally therapeutical agents. But their intelligent use must be based upon a knowledge of anatomy, physiology, pathology, chemistry and therapeutics; for the human organism is so intimately related that each part, either directly or indirectly, affects every other part. The same heart's blood sends its arterial currents to every point; the same nerve centers radiate their impressions throughout the system, and the same vital force pervades every atom of its structure. This specialism, therefore, cannot be legitimate unless its practice is laid in the fundamental principles of medicine.

Appreciating this fact, there is a growing tendency among the best dental graduates to make the diseases of the teeth and mouth a specialty in medical practice; and that they may be better qualified to do this, many of them supplement their dental education with a full course of instruction at our medical colleges.

Much of this time could be saved if these colleges provided ample instruction in dental and oral surgery, and exacted of

their graduates a knowledge of the pathology of the diseases in this specialty and the science of their treatment.

Dental text-books devoted to diseases and treatment of the teeth are seldom found in medical libraries, and medical text-books, as well as lectures in medical colleges, have hitherto been comparatively silent upon this subject; which fact has necessitated the organization and maintainance of dental colleges—until it is claimed by some that dentistry has almost created for itself a separate science. But since the teeth constitute a portion of the human body, there can be no separate science for the treatment of their disease.

All change from rest to unrest in any organ of the body is a change from health to disease, and its pathology and treatment should be taught in medical text-books and colleges. Without it they are but partial teachers of the curative art, and fall, therefore, short of accomplishing their whole mission. As medical colleges are now constituted, medical graduates go forth in as great or greater ignorance of diseases of the teeth than do dental graduates of general disease. As an illustration of this lack of knowledge on the part of physicians, I will give a single instance, which is a fair sample of others constantly occurring, and which could be given by almost any dental practitioner.

A physician of large and respectable practice came to me a few months ago with a patient having a swollen face. Said he, "Doctor, this patient has been suffering for several days with toothache, and as nothing I can do affords relief I have brought her to you to have the nerve killed." I replied:

"Yes, Doctor, I see it is an ulcerated tooth. The nerve has undoubtedly been dead for a long time."

On raising the upper lip, I called his attention to an abscess just ready to burst, over the root of a cuspid tooth. I took my bistoury and, with a slight puncture, brought the pus. Said he, "Doctor, are you *sure* the nerve in that tooth is dead?" I replied that an abscess over the root of a tooth was one of the surest indications of the death of the pulp, and passed an instrument the entire length of the nerve canal, to convince him that the pulp was dead. He looked thoughtful for a moment, and

said, "I don't think physicians know much about diseases of the teeth." I told him I thought he was nearer right in that remark than in his diagnosis of this case.

Now, this physician was not only a professor in a medical college but he was the occupant of a chair, which made it reasonable to suppose that he would know the difference between pulpitis and alveolar abscess. Had he but listened to a few lectures on dental pathology, in his student days, he would hardly have made this humiliating mistake.

Medical colleges do not educate specialists; they but lay the foundation for general practice. This knowledge acquired, the practitioner may turn his attention to general practice or the specialty of his choice; and by the application of the principles first taught, he is supposed to become more than ordinarily skilled in the treatment of the particular class of diseases in his specialty.

With this idea in view, there is no more reason why we should have colleges for the teaching of the science involved in dental or oral surgery, independently of general medicine, than for general surgery.

One of the first requisites to success in the practice of any department of surgery or dentistry, is mechanical and executive talent. Without these a physician may be able to diagnosticate accurately and prescribe scientifically, but he can never succeed as an operator, either in dental or general surgery. But if he is educated in either of these specialties, without a general medical education, he is left no choice save to follow that branch for which he is educated, though he finds by experience that he has not the requisite talent to succeed in its practice. Many graduates of our dental colleges find themselves in this very unpleasant position. The result is, we have too many engaged in dental practice who, neither by taste nor talent, are fitted for it; and, lacking a medical education, they cannot engage in general practice. Properly educated, many of them would make excellent practitioners in medicine, but they are failures as dentists, as they would have been as surgeons.

The change advocated would give the student a chance for the exercise of his choice, ennabling him, after his regular

college course, to select the special branch for which he feels himself to be best adapted. If he chooses the specialty of dental and oral surgery, rather than to engage in the general practice of medicine, the teaching he has received should be supplemented by such clinical and other instruction as will best qualify him to engage in that department of practice. A medical education should embrace a general knowledge of all diseases to which the human organism is liable, and their treatment. Specialism includes this knowledge, to which is added careful and special study of the diseases and treatment that come within a given department of practice. A dental education, therefore, is a medical education, *plus* dental—or, special knowledge of the diseases and treatment of the teeth and oral cavity.

I therefore advocate the teaching in our medical colleges of the science of dental and oral surgery, not only that dental students may gain a broader medical education, but that medical students may be better informed regarding the diseases and treatment of the teeth. The signature of the professor or professors of dental and oral surgery should be considered as important upon the diploma of graduation as the signatures of the teachers in any other department.

At no previous time in the history of medicine in our country has the necessity for a fuller course of medical instruction become so apparent as the present; and it will not be long before a three-years course will be requisite to the respectable standing of any medical college with the profession. In making this change the fact should not be overlooked that their course cannot be complete without the teaching of the diseases and treatment of the teeth by properly educated and practical dental and oral surgeons.

With this broader and better medical education on the part of dental and oral surgeons, and a better knowledge of the nature and influence of the diseases of the teeth and mouth, and their proper treatment, on the part of medical men, there could be no valid objection to the establishment of a section in dental and oral surgery in the American Medical Association, upon an equal footing with any other department of medical science. The importance of this movement is being discussed among the most advanced

dental practitioners and the most comprehensive medical teachers. Sooner or later, this fuller and better education and condition must come, and the action of our medical colleges will largely determine whether its consummation will be hastened or retarded; but, though delayed, this ultimate result will obtain.

As America, less wedded to old ideas and practices than Europe, gave to practical dentistry its first great impulse, so, too, it may not be impossible that in this great Northwest, where advanced ideas more rapidly take root and expand, and new needs are more readily met, the first steps may be taken towards this desired end.

Having detained you longer than is customary on such occasions, with my thanks for your kind attention, and believing that some such plan as I have suggested for dental and medical instruction would be beneficial to the public, as well as those engaged in practice, I leave these thoughts for your consideration. If, perchance, what I have said should receive a greater audience than this presence, I ask for it considerate thought and a generous criticism.

ADVANCE IN THERAPEUTICS IN 1880.—New remedies many, a few good, many bad, most indifferent. Tonga valuable in facial neuralgia; sulphide of calcium in suppuration—its action marked and reliable, grain-doses now admitted; the nitrites of potassium and sodium have the action of amyl nitrite, but milder; ergot (again?) found useful in diabetes; pilocarpine useless in hydrophobia, which still defies all treatment; this last drug, tried in many directions, gave meager results; benzoate of soda commended in scarlet fever and gonorrhœal ophthalmia; salicylate of soda, according to Dr. Greenhow, mitigates but little the complications of rheumatic fever, while it may be a positive injury to the heart; salicin is inefficacious, while salicylate of quinia is highly praised by Dr. Hewan; the value of cold baths in typhoid fever has become more than doubtful.

Society Reports.

ARTICLE VII.

CHICAGO MEDICAL SOCIETY. Stated meeting March 7, 1881.

Dr. R. G. Bogue, President, in the chair. Drs. Henry P. Newman and Charles Krusemarck were elected members. Dr. R. Tilley exhibited the *Norton Attachment* to waste-water pipes. It presents the advantage of shutting, by means of a faucet, any communication between the waste-water pipe and the house. Dr. Tilley then demonstrated the worthlessness of common S traps, in which most of the water is syphoned off, as in Figure 1, the dark lines representing all that is left of the water, which soon evaporates and leaves a free entrance for the sewer gas.

FIG. 1.

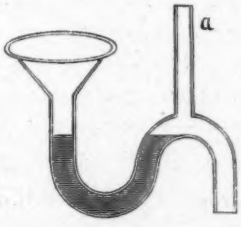


FIG. 2.

Figure 2 shows a contrivance of Dr. Tilley which allows a large quantity of water to remain in the S trap by means of atmospheric pressure through a communication with the outside air by the pipe *a*, which should be carried up to the roof of the house, and would thus ventilate the waste-water pipe. This arrangement had the preference of several members present, but, as Dr. Tilley remarked, it is best adapted to new buildings, and its introduction in old ones is somewhat expensive.

ARTICLE VIII.

WEST CHICAGO MEDICAL SOCIETY. Stated meeting held March 14, 1881.

Dr. I. N. Danforth, President *pro tempore*, in the chair. An interesting paper was read by Dr. Mary H. Thompson. It related to the case of a Swedish woman whose *os uteri* had been deeply lacerated in a first confinement. This seemed to have been the result of an unskillful use of the forceps, and it occasioned dysmenorrhœa afterward. After a third confinement, in the course of which the *os* had to be incised and the forceps used, she began to have convulsions, for which Dr. Thompson gave her bromide of potassium, and the tincture of chloride of iron. The condition of the mouth of the womb was observed, and the vaginal douche, together with the local application of the nitrate of silver, formed part of the treatment. But with the subsidence of the congestion of the neck, the body of the womb became retroverted. Convulsions returned after four months.

Dr. Thompson now operated for the lacerations, one of which extended up to the body of the womb, and it was not deemed prudent to carry the denudation to the bottom of the wound. It resulted in a partial union and a fistula. This was closed at a subsequent operation, and the uterus was also replaced. No convulsion returned.

Patient was confined November 26, 1880, at her tenth month. It was found that the neck of the womb was long and undilatable after a frequent recurrence of the labor pains. Dr. Thompson being called outside the city, Dr. Bartlett took charge of the case, and had Drs. Bogue and S. G. Clark in consultation. This proved a tedious labor. After the forces of the woman had begun to wane, they incised the *os*, introduced Simpson's forceps at the superior strait, and delivered the mother of a hydrocephalic child, who died soon afterward, but the woman made a good recovery. This case will be discussed at the next meeting.

A CONFERENCE BETWEEN DRUGGISTS AND PHYSICIANS.

The Chicago druggists responded to an invitation of the society in a large number. Mr. S. L. Coffin, President of the College of Pharmacy, read the proposed Pharmacy bill, and it was opened for discussion. The druggists want to repeal the amendment of the Legislature, giving physicians the same advantages as druggists in the compounding of prescriptions. Some of them wanted an entire separation of the two professions, at least in the cities; but the bill would apply to all the State, and there was the difficulty.

Mr. G. P. Englehard proposed that the society unite with the druggists to repeal the above-mentioned amendment, and pass resolutions on that point.

Dr. R. S. Hall, Secretary, remarked that the druggists had come, by invitation, to inform the medical society on the provisions of the bill, but not to settle the relations between physicians and druggists.

The duplicating of prescriptions was discussed by Mr. George Buck, Dr. Lyman and Dr. Twining. It seemed from their conclusions that it had grown into habit, and that a prescription is the property of a patient.

Dr. W. E. Clark, after stating the injustice of counter-prescribing, said that physicians had often to fall back on the old mode of furnishing remedies. That it was something very easy in our times, and that no medical college graduated a student in this country but was fully competent to compound medicines.

Dr. H. M. Lyman remarked that it would be very unjust to establish a law that would prevent the country physicians, and the Homœopathists as well, from dispensing their own remedies.

The most important point was reached when Dr. I. N. Danforth reproved the druggists for being all practitioners of medicine, and allowing their customers to call them doctors. Unless this was stopped the profession could not help them, and physicians would furnish their own remedies. Mr. A. G. Vogeler, R. H. Cowdrey and other druggists took part in the discussion. On the whole, the society thought the bill should be passed as it is, and amended afterward if that was proper.

The Secretary appointed Drs. Lyman, Clark and Twining a committee to report on such amendments after they had conferred with the Chicago College of Pharmacy. This report will be read at the next meeting, but the bill comes before the Legislature in a few days, and may be passed when the society meets the next time.

Dr. J. H. Tebbetts was elected a member. Through a mistake, his name was printed G. H. Peppitts in the March No. of the JOURNAL.

EPILEPSY AND CRIME.—In *Brain* quoted by London *Medical Record*, Dr. Clarke has published some very suggestive tables of statistics. He finds it hard to avoid the conclusion that alcoholism in the parents is a predisposing cause of crime and epilepsy. Forty-four per cent. of epileptic criminals were the children of drunken parents. With regard to the parents he finds that epilepsy is more frequent in the mother than in the father, and that the percentage for both parents is higher with the women than it is with the men. In drunkenness the reverse holds good. The proportion of epileptic and insane relatives is found to be very much greater with criminals than with ordinary epileptics. It has been asserted that "sexual desires show themselves early in the children of drunkards, and are associated with absence of moral sense." The author finds that the convictions for bastardy are three times as numerous among epileptics as among non-epileptics—a fact which strongly bears out his idea that epilepsy owes its origin to hereditary alcoholism. Other tables show that the amount of crime as indicated by the number of convictions is greater among epileptics than among ordinary criminals.—*Medical and Surgical Reporter.*

DR. EDMUND J. DOERING, late of the U. S. Marine Hospital service, and well known by his contributions to these pages to many of our readers, has resigned his position in the service. He has formed a copartnership with Dr. E. O. F. Roler, of this city, and expects next month to settle in Chicago. He will be welcomed by his old friends and will undoubtedly make many new ones.

Domestic Correspondence.

ARTICLE IX.

LETTER FROM IOWA.

EDITORS JOURNAL AND EXAMINER:—On Sunday, Oct. 17, 1880, a party of Russian immigrants, numbering about sixty, arrived in southeastern Dakota. When they reached Sioux City, Iowa, where there was a delay of two or three hours, one of the immigrants was very sick, some said with "ship fever;" others would have it small-pox. While waiting for a train, the unfortunate sick man was the center of an admiring crowd of the curious and inquisitive, who were freely allowed to approach and inspect him. The enlightened health officer of Sioux City, a town of 8,000 souls, did not isolate the man—did not detain him and give him Christian care, but sent him off as fast as possible, although the weather was bitingly cold. In this indecent haste to get rid of a seeming plague, the municipal authority concurred. The poor sick man proceeded in a crowded car, on his journey, of sixty-five miles, and reached Yankton, the capital of Dakota Territory, near which is a Russian settlement, only to die a few days after, but not until he had infected others; but as the cases were concealed and stoutly denied, I cannot give the number.

Either there was gross and culpable ignorance of the nature of the man's malady (he had variola in the vesicular stage), or cruel, criminal, shameful fear. Directly after the departure of the Russians from Sioux City, it was bruited the sick man really had small-pox. A public recommendation by the municipal authorities to get vaccinated, turned suspicion into reality, and then commenced a wild, unreasoning alarm, and a rush for vaccina-

tion. Every one wanted to be vaccinated immediately, while there was not enough vaccine virus on hand to vaccinate one-twentieth of the applicants. A brisk traffic in vaccine lymph suddenly started into existence, and people bought lymph, but scab by preference, anywhere and everywhere it could be found, and vaccinated themselves. A certain doctor (?) paid a house-to-house visitation, probably at the suggestion of the health officer, and vaccinated, for twenty-five cents each, all found willing to accept his proffered services. Out of the number vaccinated by this person and of those who vaccinated themselves, there was an unusually large percentage of cases of erysipelas and probably other forms of blood poisoning; and many an arm was rendered useless if not an encumbrance for months. People have learned by this time that they themselves and so-called doctors are not the best to practice vaccination; and many must long remember the small-pox scare in Sioux City, Iowa, during the winter of 1880–81.

A man who acted as interpreter to the Russians during their short stay in Sioux City, in due time manifested small-pox in the confluent form—he was entirely unvaccinated and perhaps ignorant of the nature of the disease from which the Russian suffered—and died within a few days. From this man others caught the infection; in particular one person, not susceptible, who acted as a carrier of the infection from Sioux City to Jefferson, D. T., a distance of fourteen miles, in very cold weather in the month of November, where the disease became epidemic chiefly among Canadian French and half-breeds. Every town in the vicinity of Jefferson, D. T., in Nebraska and in Iowa, set up a supposed rigid quarantine (the writer conversed with some of the quarantined in Sioux City), with a threat of $25 fine for any infringement of the same. No assistance, that I am aware of, was sent to the afflicted people. Two weeks ago the aforesaid twenty five cent doctor (?) was dispatched to the sorely tried community to inquire into the state of affairs, when it was supposed the disease, for want of further pabulum, had expended itself. A "*public meeting*"(*?*) was called at which no one from the infected families or houses was permitted to be present. It was concluded and publicly reported that the quarantine imposed no hardship, no want, no suffering, and this, remember, without affording the

quarantined, who alone can tell, an opportunity to say one word! It was recommended to raise the quarantine, because the last reported case of small-pox ended in death eleven days before, and three days before another case had had time to *positively declare itself*. This disciple of Æsculapius carried with him, and left behind for distribution among the afflicted, chloride of lime and muriatic acid, as disinfectants. But he did not enter a single infected house, only leaving these powerful chemicals to clear it of all further deadly germs!

In plain, sober, honest fact, during the prevalence of this epidemic the people among whom the disease prevailed were, like Robinson Crusoe, practically "out of humanity's reach," and it is not yet possible to say what hardships and sufferings they endured. Some bodies were left unburied for many days for want of persons to perform this last sad service, which should have been done immediately.

The returns show that 27 families were attacked, giving a total of 96 cases, with 22 deaths in the township of Jefferson, D. T., alone. There was terrible bungling from beginning to end of this epidemic. No effort was made to *stamp out* the disease which was left to *wear itself out*. A shameful, disgraceful dread was displayed everywhere by those who should do otherwise.

One more disgraceful matter remains to be noticed, and it is this: Why did railroad companies afford means of transportation to any one sick with such a highly infectious disease? And as far as the writer could discover, no disinfection whatever was practiced by the railroad officers—nothing done to protect persons from catching small-pox from *their cars* in which the sick Russian was permitted to travel! How many caught small-pox from those cars?

The idea prevails among people in this section of the country, as doubtless in other places, also, that "*varioloid*" is not small-pox. Persons suffering from the disease in this mild form were found walking about and freely mixing with their neighbors during the "*scabby stages*," in total ignorance of the risk to themselves and to others! That word "*varioloid*" is a term not only bad but unfortunate, and should be dropped without delay.

SIOUX CITY, March 1, 1881.

ARTICLE X.

TO THE ILLINOIS STATE BOARD OF HEALTH:

Gentlemen—Your undersigned committee, appointed to report requirements of good standing for medical colleges, and conditions of complaint against medical colleges, respectfully report that the committee addressed to many leading members of the medical profession, and to the medical colleges of the Union, a circular, making the following inquiries:

1. In the present state of medical science and education in this country, what preparation is, and ought to be, required for admission to the lectures of a medical college to entitle it to good standing?

2. On what branches of medical and cognate science ought courses of lectures to be provided, and what length of course on each, to entitle the college to "good standing?"

3. What requirements as to full attendance, readings and quizzes, or other examinations, occasional or final, ought to be maintained in such colleges?

4. What attendance on lectures, as to time, number of terms or courses, and intervals between courses, are, or ought to be, required by such colleges as conditions of graduation?

5. What other conditions of graduation—such as hospital practice, or practice under preceptors, attendance on clinics and dissections—are, and ought to be, required for graduation?

To this circular eighty-seven replies were received from officers of medical colleges and medical societies and from eminent physicians. The medical colleges also promptly sent their annual announcements or circulars, and many other documents were furnished the committee touching the matters involved in their questions.

The letters, which are herewith presented to the Board, express much interest in the subject under discussion, and evince a deep and general desire for improvement in medical education in this country. It is evident that the members of the medical profession are ready to welcome and sustain all wise efforts to advance the standard and increase the thoroughness of medical

instruction. The committee regret that the proper limits of their report will not permit them to quote at length from the letters received.

The annexed tabular statement, drawn from the annual announcements, will show the present usages of the medical colleges in the several respects involved in our inquiries. The letters accompanying the announcements often express a desire and purpose to introduce reforms as soon as the concurrence of other colleges will permit. This is especially true in regard to the preparatory studies to be required of candidates for admission to the lecture courses. The failure to require adequate preparation before entering upon professional studies is doubtless one of the most serious and even fatal defects in American medical education. As students usually begin their studies with private preceptors, the remedy lies first with those who consent to act as such preceptors. Let them strenuously advise all candidates to make a liberal and thorough scholastic preparation, and refuse to receive any who are destitute of such preparation, and the reform would be well begun. But the failure of private preceptors to perform this obvious duty cannot exonerate medical colleges from the responsibilities which, by implication, they voluntarily assume. The committee are glad to report that so many of the leading medical colleges have now announced preliminary examinations as conditions of admission, in accordance with the vote of the American Medical College Association, that we are justified in including such examinations in our requirements of marks of "good standing."

After a careful comparison of the usages of the colleges, and of the opinions of the profession, the committee offers the following scheme of requirements, and recommends its formal adoption by the Board as its definition of the colleges whose diplomas shall be hereafter accepted by it:

MINIMUM REQUIREMENTS FOR A MEDICAL COLLEGE TO BE HELD IN "GOOD STANDING."

I. *Conditions of Admission* to lecture courses:

1. Credible certificates of good moral character.
2. Diploma of graduation from a good literary and scientific college, or high school; or, lacking this,

3. A thorough examination in the branches of a good English education, including Mathematics, English Composition and Elementary Physics or Natural Philosophy. This provision will not be required before the close of the lecture sessions of 1882–83.

II. *Branches of Medical Science* to be included in the course of instruction:

1. Anatomy.
2. Physiology.
3. Chemistry.
4. Materia Medica and Therapeutics.
5. Theory and Practice of Medicine.
6. Surgery.
7. Obstetrics and Gynæcology.
8. Hygiene and Sanitation.
9. Medical Jurisprudence.

III. *Length of Regular or Graduating Courses:*

1. The time occupied in the regular courses or sessions from which students are graduated shall not be less than five months, or twenty weeks, each.
2. Two full courses of lectures, not within one and the same year of time, shall be required for graduation with the degree of Doctor of Medicine.

IV. *Attendance and Examination*, or Quizzes:

1. Regular attendance during the entire lecture courses shall be required, allowance being made only for absences occasioned by the student's sickness, such absences not to exceed 20 per centum of the course.
2. Regular examinations, or quizzes, to be made by each lecturer or professor daily, or at least twice each week.
3. Final examinations on all branches to be conducted, when practicable, by other competent examiners than the professors in each branch.

V. *Dissections, Clinics and Hospital:*

1. Each student shall have dissected during two courses.
2. Attendance during at least two terms on clinical and hospital instruction shall be required.

VI. *Time of Professional Studies* before graduation shall not be less than three full years, including the time spent with a preceptor, attendance upon lectures or at clinics and in hospital.

VII. The college must show that it has a sufficient and competent corps of instructors, and the necessary facilities for teaching, dissections, clinics, etc.

REMARKS ON REQUIREMENTS.

It is a matter of regret that the Board is not at liberty to adopt the practice of the best and most advanced institutions as its standard. It can only express its desire to see improvements made as rapidly as the conditions of the colleges and the public sentiment will permit.

The addition of Latin, Botany and some other branches to the preliminary examinations ought to be made as early as is practicable.

The committee also would be glad to see other important specialties of medical science and art added to the courses of required education.

CLOSING REMARKS.

While submitting the above as the committee's conclusion upon the matter referred to them, we cannot refuse to express our concurrence in the general desire h ld by so many members of the medical profession for an early and large advance in the standards and courses of medical education in this country. Among the improvements most frequently suggested, and evidently of high importance, the committee note the following:

1. The requirement of adequate preparatory studies for admission to the lecture courses of the medical colleges. It is too shamefully true that at present many students are admitted to these lecture courses whose illiteracy prohibits their profiting by the instruction given, excepting in the narrowest limits, and precludes the possibility of their attaining such knowledge as the duties of their profession positively demand.

It would be well for the profession, and for the people, if none were accepted as students of medicine who had not graduated from a reputable college, or at least a good high school.

Natural talent and aptitude may go far toward fitting a man for any calling; but no talent can take the place of thorough education in a profession where such large fields of knowledge are to be mastered, and so many and such important judgments are to be constantly and promptly formed. Such a familiar knowledge of good English and of professional language as will enable the student to comprehend promptly and precisely the lectures to which he listens, seems too obvious a requirement to need argument, and such a knowledge cannot be gained save by years of training or extensive reading.

But it is not enough that the medical student shall merely comprehend what he hears; he must be able to weigh and judge for himself the importance of the facts, and the value of the theories which are offered.

There is a palpable absurdity in expecting to make skillful physicians of illiterate students by mere dint of reading them lectures, even when accompanied by quizzes and examinations. It is doubtful whether any examination of qualifications such as can be made at the crowded opening of a session can be relied upon to assure the requisite preparation for admission. The diploma of a high school, or, better still, of a college, would be far safer evidence of the candidate's fitness.

2. The committee heartily concur with the "American Medical College Association" in its statement that "An adequate medical education is such as gives to the student a fair practical knowledge of all the branches of medical science, and a mental discipline sufficient for the proper use of such knowledge in the practice of the medical art. A practical knowledge of these various branches necessitates demonstrative teaching and personal manipulation, which can be provided, in an adequate degree, in medical colleges only."

We would add to this obvious statement that the study of theories alone can produce nothing but theoretical knowledge. Practice only can teach practical knowledge. Abstract study may discipline the mind; but skill in any art or profession can be gained only by an actual performance of the duties of that profession. The laboratory, the dissecting-room, the clinic and the hospital practice know no substitutes. The student who does

not gain skill here must win it at the bedside of his patients, and often at a fearful cost.

3. The committee also concur in the claim of the American Medical Association that "Not less than three full years should be devoted to a diligent study of medicine before graduating or commencement of practice, and that at least one-half of each of these years should be spent in a proper medical college." It should be added, that a strict and regular attendance upon all the lectures should be required, and that the time professionally spent under a preceptor should be given honestly to close and earnest study.

Whoever will carefully consider the extent of the several branches of science to be mastered by the student of medicine will easily conclude that three full years will afford but scanty time for the work to be done. Indeed, it is doubtful whether any true scholar would attempt to do his work in such time without great hesitation. How inadequately it must be done, or rather how shamefully it must be neglected, by those who reduce their attendance on lectures by fully one-half, and waste in idleness their term of private study!

4. Many of our medical colleges profess to require evidence of good moral character in their candidates. The committee are of the opinion that no requirement should be more rigidly enforced. To let loose upon the community, and into the midst of its confiding families, under the sacred name of "physician" persons of vicious habits and of immoral principles, is to send destruction where we would send healing. None but the purest and most upright can safely be trusted with the prerogative and opportunity of the family physician. The medical college offers insult and injury to mankind when it receives to its classes, or arms with its diplomas, men whose worthiness is not established by the amplest testimony.

While the Board have no authority to prescribe changes or improvements in our systems of medical education, the committee believe that we should be ready to recognize the efforts of the colleges themselves, or to advance our standard as fast or as far as the lead of these colleges will permit. No injustice is done to medical schools to require of them the highest possible

standard. Their honor and their true success will alike be promoted by it. We shall only fulfill our duty as a State Board of Health by promoting to the utmost that largest and most potential force in sanitary science and in public hygiene—a well-trained and thoroughly educated medical profession.

The committee ask further time to report on the other branch of inquiry referred to them: The regulations under which complaints will be received by the Board.

(Signed) JOHN M. GREGORY, W. M. CHAMBERS, JOHN H. RAUCH, *Committee.*

SPINAL BIFIDA TREATED WITH PLASTER OF PARIS.—Dr. Lewis A. Sayre, in a clinical lecture, says that the object of mechanical treatment is simply to protect the parts from all pressure and all possible injury until the process of ossification is completed throughout the entire length of the spinal column. This he accomplishes by first slipping over the trunk a tightly-fitting knit shirt, similar to that used in applying the plaster jacket in Pott's disease or lateral curvature. Then, having the patient held in a firm position, but without being suspended, he passes a few turns of a plaster bandage around the trunk and pelois in such a manner as to cover the spinal bifida completely. After this he cuts off a piece from both the top and bottom of the shirt, and turns the remaining portions over the part covered with plaster. He then makes a few more turns of the plaster bandage outside of all, and finally, before the plaster has had time to set, presses in the plaster with the hands on both sides of the tumor, so as to make the covering more cup-shaped, and thus protect it the more completely from all pressure. He then makes a hard, artificial roof for the spinal cord and nerves, which takes the place of the normal bony one until nature supplies the deficiency. If, on account of the child's growth, other similar plaster casings are required, they can be supplied in the same manner.—*Journal of Materia Medica.*

Reviews and Book Notices.

ARTICLE XI.—IMPERFECT HEARING AND THE HYGIENE OF THE EAR, INCLUDING NERVOUS SYMPTOMS, TINNITUS AURIUM, AURAL VERTIGO, DISEASES OF THE NASO-PHARYNGEAL MEMBRANE, MIDDLE EAR AND MASTOID REGION, WITH HOME INSTRUCTION OF THE DEAF. By LAURENCE TURNBULL, M.D., PH. G., etc. Third Edition, with illustrations. Philadelphia: J. P. Lippincott & Co.

In 1874 Dr. Laurence Turnbull, the well known aural surgeon of Philadelphia, published a little pamphlet on *Tinnitus Aurium*. So well was it received that in the following year a second edition had to be issued. And now the author presents to us what he calls a third edition. But title page and context have been changed so completely that we scarcely recognize the original *brochure* in this new book.

The volume opens with an excellent review of the recent progress of otology, and then discusses in a very able and entertaining manner the following subjects: 1, The limit of perception of musical tones by the human ear; 2, Tinnitus aurium; 3, Importance of treatment of the naso-pharyngeal space; 4, Artificial perforation of the membrana tympani; 5, Mastoid region and its diseases; 6, Hygiene of the apparatus of hearing, with the prevention of deafness; 7, Method of educating the deaf-mute at home; 8, Comparison between the audiphone and the various forms of ear trumpets.

A glance at this table of contents will satisfy the reader that the pages of this book are stores filled with valuable treasures; for the topics under discussion are of that high interest, scientifi-

cally and practically, that no intelligent physician can afford to be ignorant of them.

With reference to *tinnitus aurium* the author's view is defined in these remarks: "In the light of later experience, we could see no reason for changing our opinion that, in the great majority of cases, tinnitus aurium is by no means a sure indication of brain trouble, nor can it be frequently ascribed to congestion of the labyrinth, nor to auditory neuritis, except as an evidence of long continued irritation of the terminal filaments of the nerves; moreover, we had repeatedly proved that many of these cases are curable." He shows that the greater number of cases of tinnitus aurium result from some change in the external auditory meatus, membrana tympani, Eustachian tube or tympanic cavity.

In European journals we have recently read so much about *adenoid growths* in the naso-pharyngeal space that we were greatly surprised with reading this statement: "My opinion, since my return from Europe, is that the diseased condition of the post-nasal space termed 'adenoid growths' is not as frequent as it was supposed to be by Dr. Meyer, of Copenhagen, who was the first to draw attention to the disease, in a paper published in October, 1869. In the clinic of the University of Vienna, Dr. Gruber had no case on his list. I went to Paris and met Dr. Löewenberg in consultation. I most certainly thought this gentleman, who published an exhaustive treatise on the disease, would be able to show me a number of cases, but in three visits to him he was unable to show me a single case. Again when I went to Edinburgh I was most kindly invited to visit the ear clinic of the Edinburgh Royal Infirmary by the surgeon in charge, Dr. Kirk Duncanson, and was much interested in his cases, but he had no cases of this disease. In London, Dr. MacKenzie showed me every attention, and also gave me a note to his chief assistant, Dr. Mack Howell, who is medical officer and registrar of the Hospital for Diseases of the Throat and Chest, with its tens of thousands of cases, and in all their large number of instructive cases, of which I examined over one hundred, there was but one case of 'adenoid' disease in the hospital."

The chapter "The Mastoid Region and its Diseases," does not

compare very well with the other parts of the book. A concise statement of the present views concerning the indications for the operations upon the mastoid would, in our opinion, be more serviceable to the reader than the histories of numerous cases.

But so much more commendable is the next chapter on the "Hygiene of the Ear." "*Of all the injurious influences combined, none, however, are so hurtful to the integrity of the human ear as cold.*" If physicians would always bear this in their mind and preach it to their patrons, and especially to the mothers and nurses of children, there would be a great deal less ear trouble; for the frequent occurrence of earache in children is usually due to the ignorant carelessness in allowing children to go out of a warm room into the cold and damp air, without sufficient wrappings.

The author, also, refers to the injurious effect of smoking, and continued sonorous vibrations, as seen in the resulting deafness of locomotive engineers, boiler makers, telegraph operators, gunners, millers, and operators in factories. And he gives a series of plain and sound directions for the care of the ear in health and disease. For these, however, we must refer the reader to the book, for the limited space of this notice forbids their reproduction in these pages.

But we cannot conclude without quoting a few lines from the last chapter; for we believe that inasmuch as all the thundering about the "audiphone" proceeded from our city, it must be highly interesting to our readers to learn a careful observer's estimate of the comparative value of the audiphone and ear-trumpets: "All are now familiar with the name of 'Audiphone,' as its virtues were heralded by the press as a great boon to the deaf, and numberless publications, lectures, etc., have been sent broadcast over the land. * * * * Our unsuccessful experiments and trials with this agent in the case of the deaf mute have been already reported and published in a lecture before the class of Jefferson Medical College. Within the last month I have taken notes of a number, all intelligent and well educated persons who have had the opportunity of testing both means of relief to their deafness, and in all but a few cases the hearing trumpet, in some form, has been preferred. The result of our

experiments are as follows: In the ten cases of deafness only one was decidedly improved in the acuteness of his hearing by the audiphone, two were not benefited by either apparatus, while six were greatly improved by the various forms of the hearing-trumpet, and the one who could hear about as well with the one as with the other, preferred using the hearing-trumpet."

F. C. H.

ARTICLE XII.—A PRACTICAL TREATISE ON THE MEDICAL AND SURGICAL USES OF ELECTRICITY. INCLUDING: LOCALIZED AND GENERAL FARADIZATION; LOCALIZED AND CENTRAL GALVANIZATION; ELECTROLYSIS AND GALVANO-CAUTERY. By Geo. M. Beard, A.M., M.D., Fellow of the New York Academy of Medicine; of the New York Neurological Society, etc. A. D. Rockwell, A.M., M.D., Fellow of the New York Academy of Medicine; Electro-Therapeutist to the Woman's Hospital of the State of New York, etc. Third Edition. Revised by A. D. Rockwell, M.D. With nearly 200 Illustrations. 8vo, pp. 758. Cloth, $5.50. New York: William Wood & Co., 27 Great Jones St. 1881.

This work is above criticism. It forms a whole cyc'opœdia of every principle and fact pertaining to electricity; such as its history, experiments, instruments, and medical uses. The book is divided into four parts: Electro-Physics, Electro-Phy iology, Electro-Therapeutics, and Electro-Surgery. It contains a copious Glossary and an Index. But it is far above the reach of most students, and many practitioners, being particularly adapted for physicians who desire to make the treatment of diseases by electricity a specialty. The authors prove from an abundance of cases that electricity is one of the most valuable remedies, acting as a stimulant, a tonic, a sedative, or even as an anodyne, according to the manner in which it is used; and this point necessitates a great deal of knowledge and discrimination on the part of the medical attendant.

"In regard to the theory of Dr. Thomas W. Poole, of Lindsay, Canada, that electricity is essentially a paralyzing agent, and that its sedative and tonic effects are due to its paralyzing power, this may be said, that, granting for a moment the full

claim, it yet remains, that practically we do obtain from the use of electricity sedative and tonic effects similar to those which we obtain from a vast number of other remedial agencies." [Extract from preface to third edition.]

A. D. ROCKWELL.

Any reader who peruses this book will be convinced that electricity is too much neglected by the profession, that it is often ill-applied, and that it is adapted to many more diseases than most of us are aware of. It is handsomely printed and illustrated. Let us hope that the authors, or some one else, will give us a compendium of the work, which would do much toward generalizing the use of electricity. H. D. V.

ARTICLE XIII.—THE PATHOLOGY, DIAGNOSIS AND TREATMENT OF DISEASES OF WOMEN, INCLUDING THE DIAGNOSIS OF PREGNANCY. By Graily Hewitt, M.D., London, F.R.C.P.; Professor of Midwifery and Diseases of Women, University College, etc. Third American, from the Third London Edition, Revised and Enlarged. With 132 Illustrations. 8vo, pp. 75. Cloth, $4.00. Philadelphia: Lindsay & Blakiston. 1880.

"This New Edition of my Treatise on 'Diseases of Women' is substantially a new work." Preface to the Third Edition.

The expectations of students and practitioners will be liberally rewarded by a careful perusal of this book. The treatment is specially commendable, and will be found practicable by most physicians. Dr. Hewitt's views are broad, and he takes into consideration the results obtained by all the famous specialists now engaged in the treatment of female diseases, in England as well as in America. He has not the originality of Emmet, nor that of Thomas, but for most students this might as well be considered his chief advantage. Too much space consecrated to explain and exemplify one's peculiar views, is not desirable in medicine, which derives its value from so many sources. The chapter on the Diagnosis of Pregnancy is thorough and valuable. It is very appropriate in a work like this, especially since an operator two years ago in this country, made a Cæsarean section on a girl, pregnant for some months, with the intention of removing a tumor.

On page 454, line 25, we read: "In the vaginal mucus Donné found, on examination by the microscope, a number of *trichomonata*, which are oval, shaped like a pear or biscuit, and are from six lines to an inch and four lines long." This is a pretty large animalcule. I wonder why "Beigel has failed in finding them," as we read five lines below. The book is published in good style. H. D. V.

ARTICLE XIV.—THE RELATIONS OF GOITRE TO PREGNANCY AND DERANGEMENTS OF THE GENERATIVE ORGANS OF WOMEN. By Edward W. Jenks, M.D., LL.D., Chicago, Ill.

This is a very interesting paper of thirty-nine pages, reprinted from the *American Journal of Obstetrics*, etc., for January, 1881.

The author, after a thorough examination of the literature of the profession touching the subject of goitre, has brought together in these pages a full and instructive résumé of what has been observed concerning the relations of goitrous swellings and morbid growths to functional activity and derangements of the female organs of generation.

The author has also given due attention to the treatment of the various forms of trouble under consideration. His conclusions are as follows:

"CONCLUSIONS.

"1st. There is indisputable evidence that there may be endemic and occasionally epidemic causes producing goitre in men as well as women, yet the evidence is equally indisputable that every form of goitre occurs among the latter in a much larger proportion than among the former.

"2d. The fact has long been established that in certain occult conditions of women, increased vascularity and enlargement of the thyroid gland may be produced as a consequence of some unusual excitement of the generative organs.

"3d. Violent parturient efforts may cause the vascular form of goitre, but under the influence of pregnancy there may be gradual enlargement of the thyroid gland lasting for years; while, on the contrary, a goitre produced by one pregnancy is sometimes cured by a subsequent one.

"4th. There are reasons for believing that, when goitre is caused by any disorder of the generative organs (excepting pregnancy), it is due more commonly to functional than to structural disease.

"5th. It is not as a consequence of phlegmasias, or malignant diseases of the uterus or its annexes, that goitre is developed; on the contrary, the disorders which more commonly cause or precede goitre are fluxions, congestions, functional diseases of the pelvic organs, or those disorders of menstruation which are of systemic origin.

"6th. As many goitrous necks among women are due solely to some derangement of their generative organs, the use of topical applications or remedies, however administered, unless made use of to remedy the cause, will be of no avail, and constitutes irrational and unscientific treatment.

"7th. In the prognosis of goitre, we should always bear in mind the possible complications when the tumor is of considerable size; prominent among which are compression of the trachea, leading to dyspnœa, or even dysphagia, and compression of the recurrent laryngeal nerve, producing harshness of the voice, and sometimes aphonia.

"8th. When the goitre is not large and is manifestly dependent upon some derangement of menstruation, some functional uterine affection, or has suddenly developed in consequence of pregnancy or violent efforts in labor, the prognosis is favorable, although it is not certain that there will be a rapid disappearance of the deformity."

HYDROBROMATE OF MORPHIA.—Dr. Landrieux (*La France Médicale*) employs this salt in solution to 1-50th, and injects from 5 milligrammes to 1 and 2 centigrammes a day. More soluble than the hydrochlorate of morphia, it may be used in half doses, is more sedative, and does not give rise to the sort of purulent diathesis, frequent after repeated injections of hydrochlorate.

Editorial.

At the late banquet of the Alumni Association of Rush Medical College, it was expected that Dr. Allport would respond to the sentiment, "Dentistry and Dental Education, its Past, Present and Future as related to Medicine." The speakers on this occasion were however restricted in time to five minutes, and thus he was only able to give a brief synopsis of what he had intended to say, reserving his address in full for the transactions of the Association. We however anticipate this publication by presenting his address to our readers, in the present issue of the JOURNAL AND EXAMINER. That those who practice in the department of dentistry known as dental surgery, or the treatment of the natural teeth and their surroundings, should be medically educated and therefore regarded as special practitioners in medicine, can hardly be questioned. But that dental practitioners *not* medically educated should be admitted as medical practitioners, is scarcely debatable. The only door to the medical profession is through regularly constituted medical colleges; and we would suggest to our dental friends that the means for acquiring the highest scientific knowledge of their calling, should be found in these institutions. But it should be remembered that a full medical education has not been required or demanded of those about entering upon dental practice.

The suggestion that medical graduates should be better informed regarding this subject is worthy of consideration, and we do not see how the position taken by the doctor can be well controverted, for it is a fact, as said by the physician to whom he refers, that medical men "do not know much about the teeth." When a full medical education is demanded of those entering

upon the practice of dental and oral surgery (and the sooner it is demanded the better) we have no doubt that medical colleges will prepare themselves to meet the demand, and instruct not only as to the diseases incident to that portion of the body and the science of their treatment, but provide such clinical teaching as will best qualify the student to put his knowledge into practice.

The suggestion made that medically educated men who practice dental and oral surgery should be received in the American Medical Association on an equal footing with the practitioners in any other department of medicine and have assigned to them a section on dental and oral surgery, claims attention. When the demand is made we do not see why it should not meet with a response. This department of practice should advance so as to stand among the important specialties of medicine.

AROMATIC TETRACHLORIDE OF CARBON.—Tetrachloride of Carbon was brought into notice as an anæsthetic and sedative by Dr. Protheroe Smith, in a series of papers which appeared in the *Lancet* of May and June, 1867. It is a colorless, exceedingly volatile liquid, having a delicate odor not unlike that of quince. From Dr. Protheroe Smith's papers it appears that when inhaled this body is very effective in removing the pains of labor and of dysmenorrhœa, and that it has been extensively and successfully employed for headache, toothache, neuralgia, lumbago, and rheumatic pains, applied externally on American leather cloth. Dr. Protheroe Smith has found it very efficacious in the mitigation and cure of hay-fever. He usually prescribes a very purified and perfumed compound manufactured by Corbin & Company which he calls Aromatic Tetrachloride of Carbon, and for which there is is considerable demand. "This new sedative, to which Dr. Protheroe Smith called attention in the *Lancet* about ten years ago, is prepared in a very agreeable form by Messrs. Corbyn. It has an odor like that of quince, and is said to have been useful in removing the pains of labor and dysmenorrhœa, in hay-fever and in neuralgia."—*Lancet*, July 13, 1878.

Original Translations.

LATEST EXPERIMENTS WITH THE VIRUS OF HYDROPHOBIA. By BOULEY and PASTEUR.

Bouley says: I have often seen rabid rabbits live one, two, three, even four days. Sheep have become rabid after a period of incubation varying from seventeen to forty days. In rabbits, the usual length of the incubation is from twelve to eighteen days. It is reciprocally contagious by inoculation between the dog, the sheep, and the rabbit. These are my conclusions:

1. The virus of rabies exists only in the saliva, and in the mucous secretion of the buccal cavity; 2. The virus has proven effective after as long as ten days; 3. Under cultivation, the fluids used become crowded with bacteria, and the product of a third, fourth, or fifth cultivation (generation) has caused death in guinea-pigs, in eight, twelve, and twenty-two days. But hydrophobia could not be communicated from these to young dogs; 4. Rabies has been communicated by injecting hypodermically the diseased saliva into the pleural cavity, or into the sciatic nerve. Its ingestion, and its injection into the jugular vein, have been ineffectual; 5. Amputating the part inoculated, half an hour or more after the operation does not prevent the disease; 6. Fowls seem to enjoy an immunity from hydrophobia; 7. Injection of 3 or 4 cc. of diseased saliva into the cellular tissue has given rise to local troubles, and caused a quick septicæmia (?) which killed the dogs in four, five, or eight days; 8. In one case, rabies took place after a year's incubation, in a bitch which had been isolated.

Pasteur thus relates his discovery of a new disease allied to hydrophobia: A child died with hydrophobia December 11, 1880. Four hours after death, I scraped off some buccal mucus

with a brush, diluted it with water, and inoculated it immediately in two rabbits. These died about thirty-six hours after inoculation. Other rabbits were inoculated with the saliva, others with the blood, of the first rabbits. Death was still more rapid. A great many inoculations with the saliva, or with the blood of the diseased animals on other rabbits gave similar results. Inoculation with fresh blood caused death generally within the twenty-four hours. At the autopsy, the same lesions were constant in all of the cases. At the seat of punctures, on the abdomen, the venous system is rendered prominent. If death has been delayed, the cellular tissue in the neighborhood is injected with pus, and a new tissue, hard and purulent, forms adhesions between the skin and the abdominal muscles. A point worthy of remark is the swelling of the ganglia (lymphatics) on either side of the trachea, in the groin, and in the axilla, and their hæmorrhagic condition.

The cellular tissue in the groin, in the axilla, and at the points of inoculation, is generally œdematous. The lungs are frequently filled with apoplectic spots. A more constant result is the redness, congestion, and hæmorrhages in the smaller vessels of the trachea. The blood is more fluid, less liable to coagulate is black, viscous, and resembles that of anthrax. As to the symptoms, anorexia promptly appears, coming as early as five or six hours after inoculation. Paralysis sets in, and the animal dies with asphyxia. The mouth is at times frothy after life has ceased. Whether death be the result of inoculation with the saliva, or the blood, the blood of the diseased animal is crowded with bacteria having highly interesting properties. Their shape is that of short cylinders, depressed at the middle, resembling somewhat a figure of 8, with a medium diameter not exceeding one-thousandth of a millimeter, and are surrounded with an areola of doubtful nature.

Experiments in cultivation have proven that the virulence exists in solutions of these organisms, after all foreign substances which might have adhered to the latter have been eliminated. These bacteria must no doubt be the true and only cause of the new disease. The blood of the dead child did not start any growth of bacteria in the solutions in which it was tried. The

bacteria in the solution are larger and hang together in the form of beads, but their shape does not differ from that of many other organisms. The solutions act like the blood, or the saliva, after they have been inoculated.

This is a new disease, caused by the presence of a new microscopical parasite, never investigated before this day, and this discovery is another achievement in the etiology of communicable diseases. The most remarkable peculiarity of the new virus is the following: Every one knows how near-related the guinea-pig is to the rabbit, as to anatomical structure, mode of living, and the facility with which it is susceptible of all the same diseases; but the inoculation with infected saliva has given rise to no serious symptoms in that animal as yet; but as only a few weeks have elapsed, they may yet appear.

The new disease differs from rabies in that it has no incubation as the latter. A valuable work by Prof. Galtier, of the Veterinary School of Lyon, states that: 1. Rabies communicated from dog to rabbit does not give rise to symptoms before from four to forty days after inoculation; 2. The dead rabbit presents no anatomical lesions resembling those above enumerated; 3. The blood from dead rabbits cannot communicate the disease.

I have inoculated the new disease in dogs which immediately became very sick, and most of them died in a few days, without the usual symptoms of rabies in the canine species. But why is not this new disease a form of rabies in dogs and rabbits, from humanized virus?

In order to prevent any error, we inoculated in rabbits, without any result, the saliva of asphyxiated rabbits, and that of human bodies dead of common diseases. In case hydrophobia could be referred to a microscopical organism, it would not exceed perhaps the present resources of science to discover means of attenuating the virus, and inoculating it, to impart immunity from hydrophobia, in men as well as in dogs.

The new disease has no connection with septicæmia, which, as we know, readily takes on guinea-pigs.

THE BACTERIUM OF DIPHTHERIA. A series of experiments made by Ch. Talamon, *ex-interne des hôpitaux*, and reported to the Anatomical Society, January, 1881.

Most of my experiments have been made with false membranes from patients in the service of Dr. Bergeron, Sainte-Eugénie Hospital. Thanks to his favors and those of his interne, Dr. Suss, I have been able to gather a certain number of false membranes detached from the tonsils, from the trachea, or expelled through the canula, after tracheotomy. I will simply mention here such cases as gave positive results, which are eight in number, all cases of infectious sore-throat, true diphtheria, either confined to the pharynx or extended to the larynx and trachea. There were two cases complicated with croup, and in both the false membrane cultivated had been taken from the trachea, and gave the same organism as false membranes from the tonsils. In one case of diphtheria, the first in which I discovered the bacterium now presented to you, I was able to follow the disease from its start till recovery. The patient was a man 20 years old, sleeping in the same room with a friend attacked with a malignant form of diphtheria, and he had a sore throat from the day on which the latter died. The day following, he came to the Hôtel-Dieu, and we were able to discover false membranes, greenish-gray, on both tonsils, and a marked swelling of the lymphatics. Every day I repeatedly cultivated these false membranes, and during the whole course of the disease, which lasted ten days, I constantly reproduced the same microscopical organism. After the membranes had disappeared, mucus from the back of the throat repeatedly cultivated gave no result.

This is the only case in which I was able to follow, day after day, the course of the disease. In the rest of the cases I took false membranes once from each. Here is the organism produced by the cultivation in each of the eight cases. It does not resemble the *zygodesmus fuscus* of Letzerich, which has never been seen since, not even by Letzerich himself, nor the *tilletia diphtherica*, which received the claims of the German author after he had given up the zygodesmus, nor the *microsporon* of Klebs, which bred but one micrococcus. It is a fungus easily seen and recognized, whose evolution I was able to observe and study in

every detail, either in the large partitioned cultivations or in damp cells.

After its evolution is completed, it appears under the shape of mycelia and characteristic spores. These mycelia sometimes appear as long tubes, partitioned from distance to distance, specially refracting the light, and generally very clear; they are from 2 to 4 and 5 thousandths of millimeters wide (m .000002 to .000005). When the fluids are well conditioned they stretch extremely, at times branch off, and these divisions are themselves peculiar; they form by their slightly incurved branches a figure best compared to a lyre or a tuning fork. At other times, the mycelia do not stretch in that way; although multiplying, so as to rapidly cover the surface of the liquid of cultivation, they remain short, take on odd shapes, the most common of which resembles a crutch; there is always present then a multitude of straight cylinders, 4 or 5 thousandths of millimeters wide by 15, 20 or 40 thousandths long (m .000004 by .000015 or .00004).

There are two kinds of spores—round or oval—which may be considered the spores of germination, and rectangular spores which represent the last phase of growth of the fungus, and which we will call *conidia* (*conidies*). These give the species its particular character; their shape is rectangular and their size very liable to vary; their width varies from m .000001 to .000008 and more; their length from m .000005 to .000015. Sometimes they are isolated, other times they are in groups of 2 or 3; often they form beads of 10, 12 or 15 individuals, or a small chain in zig-zag. Homogeneous at first, they soon become filled with small round bodies, very brilliant, the size of common micrococci, which appear to me as the true germ of the fungus.

The round or oval spores are what forms the mycelium by stretching; they look like bright specks m .000003 to .00005 in diameter, in the middle of granular matter, spread in sheets of greater or lesser extent, which represent what is called *zooglœa*. These spores stretch one of their poles so as to form a tube m .000002 to .000004 in diameter, which branches as above stated. When the lengthening of the mycelium is first begun, the space with its prolongation represents a tadpole.

In experimenting with bacteria, it is not sufficient to isolate, by

cultivation, the organism supposed to be the first cause of the disease. It is not sufficient that the organism should kill the animal experimented upon. One must—and here is the difficulty —reproduce, if possible, in an animal the disease referred to the organism, or at least prove, through a cultivation of the various organs, that the organism inoculated, and not septicæmia are accountable for the animal's death. Now, in spite of what some German authors affirm, no one as yet has been able to reproduce diphtheria. Letzerich and Klebs pretended having obtained it in rabbits: they killed rabbits indeed; one after injecting into them the *zygodesmus fuscus* during a first period, and the *tilletia* during the second; the other after inoculating them with the *microsporon;* but neither reproduced diphtheria, for neither of them reproduced false membranes, and the rapidity with which their rabbits died leads one to think that death resulted from nothing else than septicæmia.

I inoculated the bacteria first described, under the mucous membrane of the mouth and nose of, or gave it to eat to, six rabbits, two guinea-pigs, four frogs, a cock and four pigeons. The six rabbits died in the course of six, eight, ten, or eighteen days. The first died after six days with enormous swelling of the neck, to be compared with the œdema of diphtheria. It consisted in a serous infiltration of the cellular tissue, and a cultivation of the serum has reproduced the bacterium with characteristic *conidia.* The rabbit whose death occurred eighteen days after the ingestion of liquids containing the bacteria, had a double fibrinous pleuritis with effusion; the effused liquid as well as the false membranes reproduced through cultivation the inoculated organism. In all the rabbits, indeed, I found, sometimes with the help of the microscope alone, at other times through cultivation, the fungus always present in the serum of the peritoneal cavity, often in that of the pericardium, and also in the kidneys; but blood taken from the heart never reproduced the organism. The liquid would generally remain clear in that case, or common bacteria would be found.

Of the two guinea-pigs one alone died. I let three frogs swallow flocculi of mycelia two or three times; they died 8, 10 and 11 days after the last ingestion. They were, so to speak,

stuffed with the bacteria. Specially in the subcutaneous lymphatis and in the lymph duct, the organism had abundantly multiplied. Here again the peritoneal fluid has reproduced the bacteria in cultivations, while the blood taken from a heart yet beating gave no result; in another case bacteria were produced. Two of these frogs were rutting; the female's abdomen was full of spawn; the male's testicles were the size of small beans and full of sperm. The sperm and the spawn gave the diphtheritic bacterium under cultivation, in such a manner that had fecundation been possible, the tadpoles might have had at birth the germs of diphtheria.

The most marked lesion in frogs is in the stomach. The mucous membrane was covered with a thick layer of yellowish viscous mucus, consisting, when formed under the microscope, of epithelial cells, of granulations and drops of fat, of a multitude of micrococci, and of a certain number of rectangular *conidia*. The fourth frog had, besides, an intense inflammation of all the coats of the stomach, whose peritoneal aspect was covered with fine and recent false membranes.

I let the cock swallow some flocculi of mycelium. After eight days, as he did not seem to become sick, I desired to cool his temperature, and I left him with his legs in cold water during twenty-four hours, following the course of Pasteur for the refrigeration of hens sick with anthrax. His temperature effectually fell from 42° to 38° C. Unhappily the board on which the cock was retained slipped into the water and he drowned. On making the autopsy, I found the mucous membrane of the crop covered with a multitude of white specks the size of a lentil; these under the microscope were found to consist of epithelium filled with granulations, globules of fat, micrococci, and a great many rectangular spores.

Finally, I succeeded in reproducing false diphtheritic membranes in the four pigeons. After scratching deeply with the blade of a bistoury the surface of the mucous membrane, then smearing the solution over the abrasions, I noticed after twenty-four hours, a thick membrane coating both sides of the mouth, the tongue, *velum palati*, and the back of the throat; this false membrane was whitish yellow, and formed, like the false mem-

branes of the pharynx and of the tonsils in man, of epithelial cells, of fat, of cocci, and of bacteria; very few rectangular *conidia* were present, but under cultivation this membrane always reproduced the peculiar organism. I saw no fibrin. Two of the pigeons died after three days; one of them had false membranes around the opening of the larynx also, and its trachea was filled with a thick mucus whose cultivation reproduced the bacterium. The peritoneal and pericardial fluids and the kidneys reproduced it also under cultivation. But, as in the case of rabbits and frogs, the blood taken from the heart did not contain it, and the flasks sowed with it remained clear. The third pigeon recovered after eight days of sickness; the false membranes came off and he got well. The fourth is yet under observation. These various experiments present peculiarities on which I will insist later. My aim in this paper has been confined to prove that I had isolated a microscopical organism which has better claims than the *tilletia* of Letzerich, and the *microsporon* of Klebs, to be acknowledged as the cause of diphtheria, since it reproduces false membranes which these authors never produced.

"HUNTER took pupils, as formerly, into his house, as was then the custom all over England, and spent all the time he could snatch from his practice in the study of comparative anatomy and natural history, and in making preparations for his museum. His habit was to rise at four o'clock in the morning, to spend from four to five hours in his dissecting-rooms, and then to step into his carriage to make his daily rounds among his patients. He had no fondness for surgical practice or consultations, and attended to business only because it afforded him the means of purchasing objects of curiosity or of natural history, saying, as he laid aside his scalpel and forceps, 'Well, Lynn,' a pupil and an intimate friend, 'I must go and earn that d—d guinea, or I shall be sure to want it to-morrow.'"—*Dr. S. D. Gross.*

Selections.

THE POSITION THAT DENTAL AND ORAL SURGERY IS DESTINED TO OCCUPY IN AMERICA. BY TRUMAN W. BROPHY, M.D., D.D.S., Clinical Lecturer on Dental and Oral Surgery in Central Free Dispensary, Rush Medical College, Chicago. (Read before the New York Odontological Society, February 15, 1881.)

The rapid advancement of the art and science of dental and oral surgery during the past quarter of a century has probably not been surpassed in the annals of history. The earnest, thoughtful, progressive practitioner, who loves his vocation and desires to aid in its advancement, cannot find another subject upon which his energies may be expended to such advantage as in laboring to elevate dentistry and place it before the whole world side by side with the other departments of art and science. What is dentistry, or —a better name,—dental and oral surgery, as recognized by the world to-day? (I say dental and oral surgery because the term more clearly represents, or indicates, the tissues upon which the educated dental surgeon is called on to operate.) By a few of the more intelligent it is, as it should be, accepted as a science as well as an art; but by the greater number of well-educated people, —people possessing extensive information on nearly all other subjects,—cultured people, some, indeed, who occupy prominent places in the learned professions,—men distinguished for their classical education and attainments,—really believe that the practitioner of dentistry is pursuing a menial vocation, and is simply an ordinary mechanic. Such being the views of some of the more intellectual, what may we expect from those who occupy less prominent places in society?

Let us look for a moment at the condition of dentistry in this

country and see if our friends are not, to some extent, at least, justified in their opinion of us. There are, in thirteen States, laws to regulate the practice of dentistry; in the other States, including Illinois, any one who so elects, even though he can neither read nor write, may place out a sign and enter upon its practice. So long as this condition of things is permitted to exist it is not reasonable to expect the laity to recognize dentistry as having any claim to the name of a profession or any part thereof, or to place it on a par with the universally-accepted learned professions of the world.

The work so well and faithfully performed by our eminent American dentists in conducting institutions of dental learning, as well as in establishing and successfully maintaining dental associations, has resulted in Americans justly receiving acknowledgments from the whole dental world as excelling in this department of art and science. Upon these men who have conscientiously labored, devoting their lives and fortunes to their efforts to advance a branch of science,—some of whom, owing to their assiduous exertions, now rest in untimely graves,—too much honor cannot be bestowed.

Notwithstanding the great advancement made in dentistry by the efforts of the energetic men who are and have been engaged in its practice, I cannot but think that the course so long pursued in regard to dental education and association falls far short of what it should be. There is no doubt that dental surgery is a specialty of medicine; and holding that belief, we should at once take steps to place our specialty side by side with other special branches of medical learning. Can this be accomplished? What shall we do to verify the clause which appears in the Code of Ethics of the American Dental Association, to wit, "Dental surgery is a specialty in medical science," etc., etc.? Can we secure for dental and oral surgery recognition as a medical specialty equal to that so universally accorded to ophthalmology, otology, gynæcology, etc.? Most certainly we can! Can it be done by establishing new societies of dental surgeons and admitting only men who are M. D.'s? Not by any means. While all credit should be given to the distinguished gentlemen of Boston,—doctors of medicine practicing dental and oral surgery,—who have wisely

formed "The Society for the Advancement of Oral Science," its good results will probably be largely of a local nature, though its influence may extend far beyond the city of Boston and become a stimulus to similar societies. It will be impossible to place the specialty of dental and oral surgery on a par with other medical specialties by organizing such societies, it matters not how eminent their members may be, how high their standard, or how exacting their requirements for admission to their ranks.

There is, undoubtedly, but one way by which dental and oral surgery can be placed in the position of equality with the other recognized medical specialties, and that is bringing it within the province of the American Medical Association, made up as it is of the most distinguished medical men upon the American continent; men, indeed, representing every State in this broad Union; men representing every specialty of the science of medicine except one. Who are these medical specialists that are so negligent as to suffer their specialty to be the only one without representation in this the highest medical association in their land? Who are these medical men who have not considered their specialty of sufficient importance to carry their banner to the front, and place it in line with those of other specialties? None others than the doctors of dental and oral surgery. Is this not true? And yet we claim to be medical specialists. I believe the time has come when we should cast off the scales from our eyes, realize our position as medical men, and immediately take steps to place our specialty where it belongs—in the American Medical Association. Warm friends will greet us there,—men whose names are familiar to every medical practitioner and student in every civilized nation of the earth. Such action will no doubt be taken in May next, at Richmond, Va., where the American Medical Association holds its next annual meeting; and when the section of dental and oral surgery is established, it will be the forerunner of a new era, in which dentistry in America will be elevated to a higher plane than it has heretofore attained. There will probably be opposition on the part of some of the members of the Medical Association to this procedure, but I am firm in the belief that this highly intelligent body will recognize the importance of such a section, and, therefore, receive us most cordially. We shall probably meet

with opposition from our dental friends, who will argue that we should stand by dentistry for what it is. They will also speak of the absurdity of placing dentistry where physicians and surgeons may, if they desire, enter upon its practice, even though they are ignorant of all the manipulations so essential to a competent dental operator. To such arguments—and as many more as our friends deem advisable to enter into—we shall answer at the next meeting of the American Dental Association, which will occur in New York City the coming August.

Placing dental and oral surgery in a position where the whole world must accept it as a department of medicine, will make it a more exalted vocation, and a greater number of men of higher intellectuality will be found in our ranks than would ever come under the present *régime*. It will add a new impetus to thought and investigation. It will be an incentive to young men who aim to be thoroughly qualified to practice dentistry, to educate themselves as doctors of medicine in conjunction with their dental training. With this accomplished we shall be accepted as medical men practicing a specialty of medicine. We shall no longer be erroneously called the "dental profession," any more than ophthalmologists should be said to belong to the ophthalmological profession or dermatologists to the dermatological profession; but we shall, in common with the others, be medical men,—doctors of medicine with all the title implies,—practicing a specialty thereof not second in importance to any.

The plan here proposed, and which will in all probability be carried out, is as follows: All regular physicians practicing dental and oral surgery are requested, if they are in sympathy with this movement, to join their county medical society (if they are not already members), get their credentials to the American Medical Association, to go Richmond, Va., where it convenes in May next, when a section on dental and oral surgery will be organized, and application be made to the Association for admission. If there be any prominent member opposed to this course, I have neither seen him nor heard from him. I have in my possession letters, in answer to mine, from some of the most distinguished members, requesting their views of the scheme, containing such expressions as follows: "I wonder why this was not done long ago." "Dental

surgery is as much a department of medicine as ophthalmology, and consequently should have representatives in the American Medical Association, *provided they are medical men.*" "I am glad to see that you have at last realized what you are, and are now ready to do your duty, as you have expressed it to me, and return home to your mother who gave you birth."

I might quote pages from eminent men engaged in general practice, as well as from those engaged in all the specialties, including ours, but these I have given are fair samples of the whole number. That I may not be misunderstood, I wish to say that the American Association is, and probably always will be, the only truly national association of dentists in this country, and it is indeed a high honor to any dentist to hold membership therein.

The time will doubtless come when every member of this association will be a medical man,—an M.D. An impression must not go out to the effect that we are in the least dissatisfied with the American Dental Association. Not so by any means. The grand work achieved by that body will adorn the pages of the history of dentistry many years after our children's children have passed away, and other minds are grappling with and endeavoring to solve the great and ever-absorbing problem of professional advancement.

While a large majority of its members are not medical men, we shall feel that it holds a position corresponding to that occupied by the American Gynæcological Association, the American Dermatological Association, etc.; but, like these latter associations, we, too, should have members of our specialty in the American Medical Association, the *only* great national association for all medical practitioners, either general or special.

Injustice would be done to ourselves if this paper were concluded without claiming that we shall impart much information to our associates in other departments of medical science, and furnish them with valuable papers upon the *most prevalent* of *all* diseases,—diseases which lead to more suffering than any others known to civilized man,—diseases, indeed, the etiology of which the general practitioner has studied but little, for want of time, but which not infrequently originating in distant organs of the body, manifest themselves in the teeth or maxilla, and *vice versa*.

The facial neuralgias which prevail to such an extent are largely due to dental lesions, and too often irretrievable losses have been sustained by patients without just cause.

It is for these, with other reasons previously stated herein, that a section should be formed on dental and oral surgery in the American Medical Association. No one can justly claim that the American Medical Association conflicts in any way with the good work accomplished by the American Dermatological Association, or the American Ophthalmological Association, or other associations whose work is upon special subjects pertaining to the science of medicine.

Such will be the relation of the American Medical Association to the American Dental Association. Working together hand in hand in one common cause, with one motive, we shall go forward, mutually acquiring that knowledge which will make us better, and enable us to stand before the world conscious of having used our combined talents to the extent of our ability to advance the most noble of all professions,—whose existence is dedicated to the alleviation of human suffering and the promotion of the happiness of man.—*Dental Cosmos*, March, 1881.

THE SCOTCH INTRODUCTORY ADDRESSES—BY S. D. CAMPBELL BLACK.

If we discard the technical introductory addresses recently delivered in the Scotch Universities by one or two of the professors, such as those of Professor Cleland and Charteris at Glasgow, and Professor Turner at Edinburgh, it is remarkable with what unanimity the other professors assailed—and it is significant of the times—what they are pleased to term, and vexed evidently to recognize as, the materialistic and rationalistic current of popular opinion at present. As a matter of course two of the clearest thinkers and most elegant writers of the day, Huxley and Spencer, came in for a fair share of attention, and the customary vituperation. Now this a matter which falls quite competently within the domain of the physician—particularly of the medical psychologist—especially as the proneness of medical men to scepticism, if

not absolute Atheism, is unjustly proverbial, and is accepted as merited in quarters where we should not have anticipated it. The church in Scotland, and those immediately dependent on the perpetuation of ecclesiasticism, are profoundly agitated at present in endeavors to reconcile their means of living with the dawning intelligence of the multitude, and the perplexities of many are rendered still more inextricable by the ingenuity which education commands, and is not slow to employ in this process of reconciliation. It is too well known to practitioners of medicine to what a painful extent mental aberration is due to religious perplexity of some kind or another, and it is much to be doubted whether the well-meaning attempts alluded to are calculated to obviate this contingency. The question presents, Is it not compatible with a happy and useful existence—with even a Godly existence—to cast aside that which in the nature of things lies of necessity beyond the domain of sense and reason, which is, therefore, thus incomprehensible, and of which no amount of empty and high-sounding talk will ever enable humanity, as at present constituted, to take cognizance? Are there not thousands of men and women, too, of of spotless reputation who do this, and avow it; and as many who secretly think thus, but whose avowal thereof is restrained by social considerations, or false and pusillanimous notions of propriety? For too long a time mythology and morality have been regarded as inseparable. It were well if people reflected a little more that the ultimate tribunal to which all our knowledge is referable is that of *human observation and experience*, and all our conceptions of the external world (and we can have no other) are appreciated alone through the medium of our senses. If this undoubted and unassailable position were more frequently kept in view, from what an amount of inconsequent and illogical rubbish would society be exempt. Professor Blackie, of Edinburgh, is a versatile man, a good linguist, an indifferent rhymer, and, in his own opinion, at least, an authority on most subjects. In an address, on the occasion of the the opening of his class, "On Science and Literature in their Relation to Culture," he indulged in the now customary fling at Huxley and physical science, with what success a quotation or two from his address will show: "Whatever discoveries may have been made with regard to the

composition of Professor Huxley's favorite primordial substance called protoplasm, or the special functions of this or that convolution of the brain, or the missing link between any type of curious buckler-headed fishes in the Devonian bed, and the rich crop of tadpoles and toads in the Triassic strata, it will remain an impossibility that any science which concerns itself chiefly with the shell or pulp of inferior organisms divorced from vitality can be so interesting to human beings as the soul of living man. For it lies in the very nature of physical science that it occupies itself principally with things from which life is gone, or, at least, which cannot be examined when the living processes are in a complete state of normal exercise." . . . "God is life and God is love. Of this prime source of all human greatness mere physical science can teach nothing." Professor Blackie is inexcusably in error in thinking that physical science takes not equally, if not greater cognizance of the living than of the dead organism. It sees in the living the completion and the perfection of organization; from the dead it deduces conclusions as to the living within the domain of sense and reason, and in harmony, as already stated, with human observation and experience. Further it does not pretend to go, and with as much ardor and reverence as professor Blackie, it regards, in the best sense of the term, the proper study of mankind to be man. That which physical science regards as the sum of the phenomena of healthy cerebration, the "Modern Athenian" maintains to be a distinct entity, whose study is to be specially relegated to what he calls "moral science," "the science directly of the living man;" and this science, according to him, "is known not by peeping microscopes or far-sweeping telescopes." The interdependence of the *mens sana* on the *corpus sanum* duly acknowledged by his ancient friends, is at least inferentially ignored by the learned Professor. Physical science embraces the study of men, animals, and Nature as a whole—their attributes as well as their material. Blackie's "moral science" comprehends but the cerebral manifestations of man. Professor Blackie affects a fondness for "exact definition;" would the learned gentleman oblige us by an exact definition of his "soul," or "mind," which we hope we are not wrong in assuming to be synonymous terms? Will he put into understandable English any idea which is not a material

reflection, so to speak, *primarily* conveyed to the cerebrum through educated sense? If any one assert that the sun is inhabited by human beings similar to those which inhabit this planet, we naturally smile at the innocence of the statement, and ask the proof thereof, sceptical of its being forthcoming, as being a violation of reason and experience; for with the exception of three ancient Hebrews, into the salamander composition of whose bodies we do not stop to inquire at present, the surrounding medium of fire is not *usually* compatible with the existence of organized vital structure. The *onus probandi*, therefore, lies with him who makes any statement which violates reason and sense. The special beverage of his friend the Celt, as the Professor may be assumed fairly to understand, possesses a singular disturbing influence on cerebral circulation, *pari passu*, it effects the soul, or mental functions; even the Professor has been known to sing, if not to dance, in presence of this "holy ecstacy;" it may be pushed so far as to cause coma, from which recovery may take place, but during this state the mental functions are in complete abeyance—the mind has been a complete blank. Should the molecular changes caused in the brain by the circulation of blood, and of which thought is the expression, be permanently arrested, and its organic structure become a prey to decomposing chemical changes, what has become of the mental phenomena, and what proof have we of their existence apart from vitality? These are questions not to be shirked, or ruthlessly pushed aside by anyone owning a philosophic allegiance to truth.

The colleague of the learned Professsor of Greek, Professor Charteris (Edinburgh), from his coign of vantage, leveled his ecclesiastical thunderbolts at "Rationalism as Antagonistic to Christianity." By "rationalism," he understood "the doctrine or the tendency of those who admitted nothing they could not understand or at least clearly reconcile with reason." The definition is not a fair one. The rationalist is on every hand surrounded by mysteries hidden deep in the bosom of Nature, whose existence is to him indisputable, but which unaided sense fails him in unraveling. The tiny seed, he knows, retains its vitality for thousands of years; of this he has proof afforded by the evidence of his senses; and he believes that, from the dawn of time, the gigantic heavenly spheres

observe their magnificent course with a regularity and grandeur whose contemplation prostrates his highest aspirations in the dust. These things he cannot understand; he knows they exist; he can formulate no reasonable solution of their genesis nor maintainance, but he is content to know, and humbly to feel, his ignorance, rather than create any theory which would violate his cultivated reason. Professor Charteris indicated the common possession of this "dreadful materialism" and Christianity, ingeniously claiming for the latter a "reverence for facts," and adding that "it would be a bad day for Christianity when it ceased to claim that as its distinction, amid the many forms of faith and unbelief to which men adhered." It is no business of ours to contend with the amiable professor on this subject; but tried by the standard above submitted, and a "reverence for facts," we would be curious to learn in what form Christianity would present after having undergone the ordeal. Religion without a reasonable basis, Professor Charteris seems to admit to be worthless; and there is no avoiding the conclusion, faith without some show of reason is simple superstition.

What concerns us as medical practitioners is the care of many of unstable mental equilibrium rendered unfit for their duty to themselves and to society by vain and hopeless striving to comprehend mysteries in religion unfathomable, and in Nature incomprehensible. Is it not compatible with their well-being, and our duty to society that we enjoin, at least, a suspense of judgment on questions beyond the domain of sense and reason; inculcate the beauty of morality, and the manliness af truth; the seeking of good for its own sake, and the shunning of evil as incompatible with a happy and useful existence; and to impress upon such as are thus influenced that it were an outrage on Deity that he can be the Nemesis depicted, especially from Scotch pulpits.

THE THERMOGRAPH—ITS EVOLUTION AND DESTINY. By A. WELLINGTON ADAMS, M. D.

The introduction or application to medical science of no one instrument has afforded a more forcible impetus toward the goal of perfection, and the establishment of an exact science, than has the ushering in of the thermometer by Sanctorious, and subsequently the foundation, by de Haen, of medical thermometry.

And as the mind reviews and takes cognizance of the successively progressive steps constituting its history, from its inception to its present stage of development, one is compelled to look forward to disclosures far transcending present realizations.

Hence I was led, in the early part of 1879, to conclude that, notwithstanding the present degree of perfection in the science of medical thermometry, and the important function already performed by the thermometer in clinical, diagnostic, prognostic and experimental medicine, there was yet still further room for improvement. And, in fact, a palpable need for a more delicate and accurate thermometric system as an auxiliary to physiological, therapeutical and pathological investigations.

At present the office and usefulness of the system is sadly limited by its imperfections and narrow range of application. There are, no doubt, a few who will, upon first impulse, stamp this as a bold assertion, tending to depreciate the value of this most important aid to modern therapeutics, and, indeed, to all branches of scientific medicine. Such a *petitio principii* cannot, however, for one moment be allowed, since it must be acknowledged by all, that with existing appliances we are but able to ascertain the morning and evening minimum and maximum of temperature, regardless of the momentary or even hourly remissions and exacerbations of minor waves which fall within these, as it were, medium tidal points. By this latter expression I would have you understand me as referring to the points representing the morning and evening thermometric observations, A A A, fig. 1.

Now, a visual revelation of these constant thermal changes would, even with our present degree of knowledge concerning the

pathognomonic character of certain thermal phenomena, be of incalculable value, and, therefore, a consummation to be devoutly sought for. But, outside of the advantages accruing from the application of existing knowledge to these observations, the anticipation of new developments and additional advantages resulting therefrom, becomes extremely plausible and justifiable; for it is as probable as it is possible that these momentary perturbations or minor waves, of which we as yet know almost nothing, are also conformable to law; forming, in different diseases, and under the administration of various drugs, characteristics quite as significant as do these medium waves, if I may be allowed the expression, when looked at collectively as preserved for a consecutive number of days.

From the results of these observations, taken, according to the present method, at comparatively irregular intervals, we can crudely construct a major wave, B B, fig. 1, analogous to the now so-called "fever curve," which may after a week or so prove characteristic of some peculiar form of the exanthemata, which we have become accustomed to recognize by comparison with a typical curve or major wave, whose conformation depends upon the position of these medium tidal points—that is to say, the points recording the morning and evening thermometric observations taken each successive day from the stage of pyrogenesis to that of defervescence.

I, therefore, concluded that in order to render the system more perfect and extend its range of application, it would be necessary to devise some means for procuring a thermometric record which should represent the *constant* condition of the subject under experimentation or treatment, for any desired length of time; this record to assume the form of a continuous curve automatically inscribed *pari passu* with the development of the disease.

This, of course, I found impracticable with the instruments already at the command of the profession. A solution of the problem, then, evidently depended upon the invention of an instrument capable of fulfilling these requirements. No sooner did this proposition present itself than I began to turn my attention in that direction. And is it to be wondered at, that in looking for the *principia* upon which would depend the construction of

such an instrument, I should follow the footsteps of Breschet and Becquerel, who laid the corner-stone of the science by the aid of delicate thermo-electric apparatus? On the contrary, it is quite natural, that in looking for further boon, I should turn toward that force which has already been the means of marvelously facilitating commercial intercourse—of conferring upon man untold benefits of general application and lasting endurance—and of heaping upon science and its unfolders immeasurable *éclat*.

Having already given much attention to experimental electricity and acoustics, as bearing upon otology and laryngology, I was peculiarly and specially prepared, both as regards practical or detail knowledge, and the possession of suitable apparatus, to undertake the solution of so trying and complex a problem.

So, after adding to my laboratory much improvised paraphernalia for experimental research, I began operations, which, as before intimated, at first lay in the direction of thermo-electricity; to which principle I ascribed the ability to meet the requirements indicated in the first steps, *i. e.*, the contriving that portion of the embryo instrument capable of perceiving and responding physically to all variations in temperature with which it might be brought in contact, be they ever so slight. And, as regards this specific property, I was not in the least disappointed as to the inherent power of this principle; for, I procured several cylindrical tubes of antimony and bismuth, 3-16 of an inch in external diameter, and cutting them up into segments one-quarter of an inch long, then soldered these pieces together in alternate order, and lastly bent the whole into a spiral one-inch in diameter, to each end of which was attached a copper wire—one being fastened to a segment of bismuth at one end, and the other to one of antimony at the opposite end. I had then an instrument (see fig. 2) which would, when placed in the axilla, and the terminal wires connected with the binding posts of a differential galvanometer, give evidence, through the varying deflections of the galvanometer needle, of the most minute and transient thermal fluctuations.

This, however, was not the only indication to be met. There was the recording part yet to be constructed, and that necessarily must bear a certain relationship to the thermometer proper.

In the device described above and figured in illustration No. 2,

there were generated thermo-electric impulses sufficiently strong to induce an extensive range of deflections in a sensitive galvanometer, but entirely too weak to manifest themselves in any more crude manner; while, of course, the delicacy of the galvanometer rendered impossible the application of mechanical appliances for graphically recording deviations; for it must be borne in mind that with the graphic method, the first essential is a surface traveling in a straight line at a uniform rate of speed; this may be accomplished after any of the known methods. The second essential consists in the provision of an automatic writer for inscribing the record upon said surface. This, as is generally the case, may be effected by means of a delicate lever, having attached to its longer extremity a marker so arranged as to move backward and forward over the traveling surface. When the lever is quiescent and the movable surface in motion, a horizontal line is made, known as the *abscissa*. This signifies time, and all deviations from this line are called *ordinates*. These may vary in direction, from the vertical, to any degree of obliquity, according as the impingements upon the shorter end of the lever, which give rise to them, are abrupt or sluggish.

It will readily be seen, then, that with the addition of these pieces of mechanism, we have a commensurate amount of friction to contend with, and in order to overcome this, our electric impulses must be stronger than could be generated by the small antimony and bismuth spiral seen in fig. 2.

Not in the least daunted, however, by the dissipation of all hopes in this direction, I still continued my researches, fully believing that even many more failures were in store for me, as the *res necessariæ* to the proper evolution of a successful issue.

Experience seemed now to clearly indicate a necessity for a definite source from which to derive a constant and unvarying supply of electricity, of sufficient strength to undergo a mechanical metamorphosis equal to our requirements. This current, however generated, should be moulded into electrical waves corresponding to the thermotic changes, through the introduction, at any given point in the circuit, of some physical or chemico-physical device capable of accomplishing the same. To effect this, the instrument illustrated in fig. 3 was constructed. This consists virtually

of an ordinary thermometer made of vulcanite and bent into a spiral. For convenience of illustration this shape is not shown in the cut. The bulb was lined with a silver film in electrical communication with the lower binding-post, A. Up both sides of the shaft B, and at right angles to its axis, minute channels were drilled at uniform distances from each other, and leading into the shaft bore. These channels, instead of being placed opposite each other, were arranged one above the other, *e. g.*, the first one on the right hand side (C) being placed 1-32 of an inch from the first one on the left hand side (D), while the *second* one on the right hand side (E) was placed 1-16 of an inch from C, and 1-32 of an inch from D; and so on throughout the entire series. The shaft-bore was now temporarily filled with a wire of corresponding caliber, and the aforesaid channels filled with melted platinum. A No. 36 silk-covered copper wire was next soldered to the first platinum *fibrillus* (C), and then coiled several times around the shaft (B), finally to be soldered at its terminal extremity to the platinum *fibrillus* (D). Another corresponding piece of wire of like length, caliber, etc., was soldered to the platinum *fibrillus* (D), and now an equal number of lamillar convolutions made around the shaft (B), and its terminus soldered to the platinum *fibrillus* (E). When all these *fibrilli* were treated in like manner, and the last wire in the series connected with binding-post (F), a vacuum formed, and the mercury inserted in the bulb, the instrument was complete, and only awaited a trial to prove its efficacy or inefficiency, as the case might be. To an electrician the *modus operandi* of this apparatus becomes at once apparent. The binding-posts A and F being placed in an electric circuit and the thermometer bulb subjected to thermal variations—the instrument is in operation. Each of the above described coils of wire goes to form a series of "resistance coils," and any number of these are introduced into the circuit or "short-circuited"—that is, cut out, and the strength of the current thus diminished or increased, by the rising and falling of the column of mercury. For, when the column of mercury rises to the first platinum *fibrillus* (C), the electric current will pass from the binding-post (A) through the column of mercury to the first platinum *fibrillus* (C), and thence through all the "resistance

coils" to emerge at the binding-post (F), on its way to complete the circuit. If, however, the column of mercury rises to the *fibrillus* (D), the first "resistance coil" is short-circuited, and the current is obliged to pass through the remaining coils *only*. Thus the resistance is diminished a certain number of ohms and the current accordingly strengthened a relative amount of volts. This instrument was experimentally a complete success, inasmuch as with it there could be produced electrical impulses varying in intensity in accordance with the character of the temperature changes brought in contact with it. Moreover, the current designed to be thus moulded into waves could have any desired electro-motive force, and this, as before explained, was a *sine quâ non*.

When it came to the question of a practical application, though, this instrument, also seemed to be deficient in many respects. The principal defect lay in the fact that the electric waves were not *always* in exact relationship with the thermometric indications. For, supposing the column of mercury to have reached a point half-way between C and D, the electricity would then meet with a resistance equal to that offered when the column stood no higher than C, hence we should have no increased strength in the current to mark this difference in temperature. Another thing rendering it somewhat impracticable, was its complicated nature and expensiveness.

My researches now remained in *statu quo* for some time, when one day, in the course of conversation with Dr. J. Harry Thompson, of Washington, D. C., he suggested the utilization of the newly discovered property of carbon to vary its conductivity under different degrees of pressure.

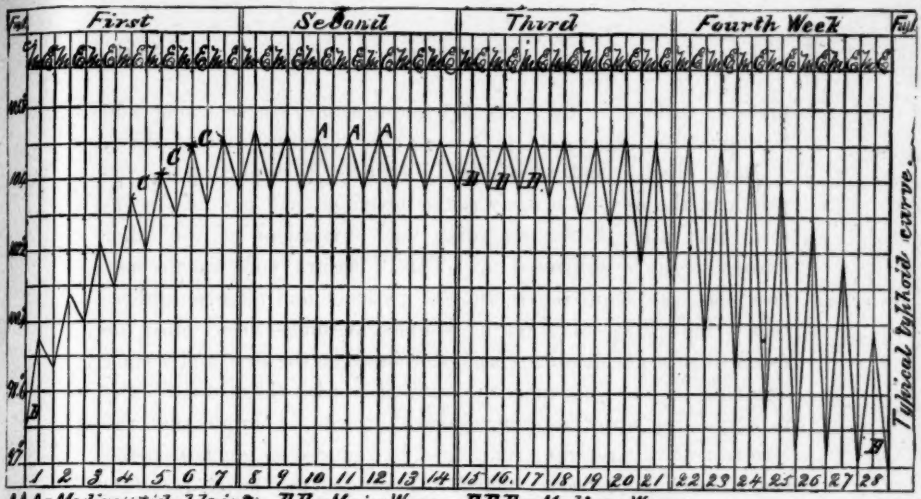
I immediately availed myself of this suggestion, developing the instrument as now perfected and illustrated in figs. 4 and 5. This is the thermometer proper or responding portion of the instrument, and consists of a spiral spring made of two *lamellæ* of brass and steel respectively, soldered together, the brass occupying the outer side. Of course this spring expands uniformly with equal increments of heat, and the brass, the most expansible of the two metals, will, upon a rise of temperature, give the platinum knob (a), attached to the free end of the spring, a concentric

twist. In this way we produce a varying pressure upon the contents of the vulcanite tube (T), against which the platinum knob (a) impinges.

The other end of the substance contained in the hard-rubber tube (T) has for its abutment the platinum knob (b) attached to the hard-rubber bracket (C). The whole, as seen in fig. 4, is inclosed in a perforated German-silver case, with rounded edges, and having an external diameter of but 1¼ inches.

The binding-post (A), fig. 4, is in electrical communication with the platinum knob (a), and the binding-post (B) is in electrical communication with the platinum knob (b). When the apparatus is introduced into an electric circuit, by attaching the two poles to the two binding-posts, the current enters through one and emerges at the other, passing in its course, through the substance in the vulcanite tube (T). The two little handles (H) (H) are intended as a means of securing the instrument in its proper position in the axilla. The composition used in the vulcanite tube (T) may be either a solid stick of baked lamp-black, a series of carbon discs with intervening ones of silver, or a powder made of plumbago, gas-carbon and silver, finely divided. After receiving a communication from Thos. A. Edison in regard to this matter, I commenced a series of experiments to determine the most suitable composition for this purpose, and the best results were obtained from the powder already referred to. The salient feature of this instrument is the changing of its electrical resistance with pressure, and the ratio of these changes, moreover, corresponding exactly with the pressure, the latter, in turn, being dependent upon and in unison with the rise and fall of temperature.

Here, then, was the true solution, for, by subjecting this instrument to varying degrees of temperature, the resistance of the powder would vary in precise accordance with the pressure exerted by the uniform expansion of the spiral spring under equal increments of heat, and consequently a proportionate variation would be produced in the strength of the current. The latter would thus possess all the characteristics of the heat waves, and by its reaction through the medium of some electro-magnetic piece of mechanism yet to be devised, these might be transferred to our



A.A.A.- Medium tidal joints. B.B.- Major Wave. D.D.D.- Medium Waves.
C.C.C.- Intervals in which the minor waves occur.

Fig. 2.

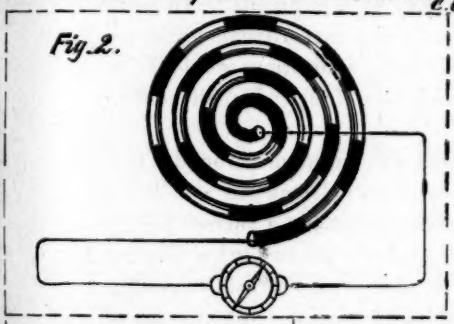


Fig. 4.

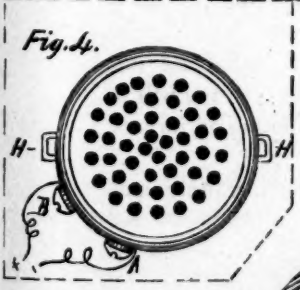
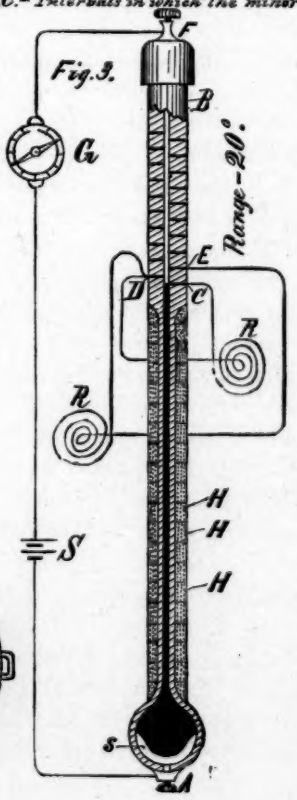


Fig. 5.

Fig. 5- Inside plan Fig. 4.
H.H.- Handles.
A & B- Binding posts.
T- Vulcanite tube.
a & b- Platinum knobs.

Fig. 3.



G- Galvanometer. S- Battery. H.H.H.- Coils in position.
R.R.- Diagram showing arrangement of coils.
S- Silver film lining bulb.

movable surface, in the form of a sinuous line, whose rising and falling inflections would give a graphic representation of them.

Now, that I had satisfactorily reduced this portion of the problem, the next in order was the devising that part of the instrument intended for recording such variations as the other branch might be subjected to. This, I assure you, was no easy task, but one requiring a mint of patience and tedious application. For, first—it must be simple; second—there must be established a permanent relationship between the first and second branches of the instrument; in other words, there must exist throughout a strict interdependence; third—in order that the electro-motive force required might be reduced as much as possible, it must be delicate; fourth—to render the latter possible, friction must be practically reduced to a minimum. To carry you through the almost endless and varied experiments necessary in developing means for meeting these indications would be as tiresome as it would be unnecessary. Hence, I shall confine myself to the result only.

If a number of coils of insulated wire be wound around a hollow reel, there is formed what is known to electricians as a *helix*. If this is now placed in an electric circuit and a current passed through its convolutions, it is temporarily constituted a magnet, the two ends forming the poles; so that it may be said to possess all the properties of a permanent magnet during the passage of the current. Moreover, if such a helix, mounted in a vertical position in such a way that an iron rod can be introduced into it from below, be connected with a battery, the iron rod will be at once drawn up into it and be sustained oscillating in its axis, even though the rod may weigh considerable.

The depth the iron rod enters will also depend entirely upon the strength of the current and the amount of resistance offered by the iron rod. This principle is well-known in physics as the "axial electro-magnetic force," and in it I found what I sought, namely—a combination of delicacy and strength in the proper proportions. A diagramatical illustration of its application may be seen in fig. 6, where H represents a helix of peculiar construction applied to the purpose in hand; D is a soft iron tube in connection with the short end of the lever (L); P, represents the

Fig: 6.

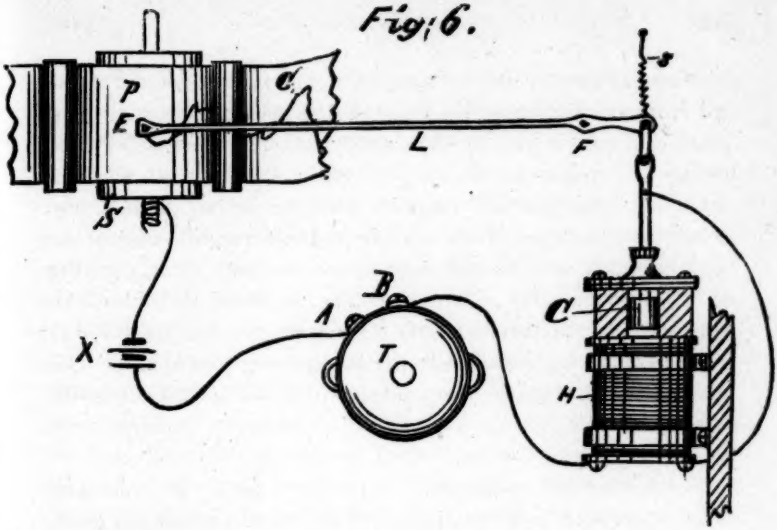
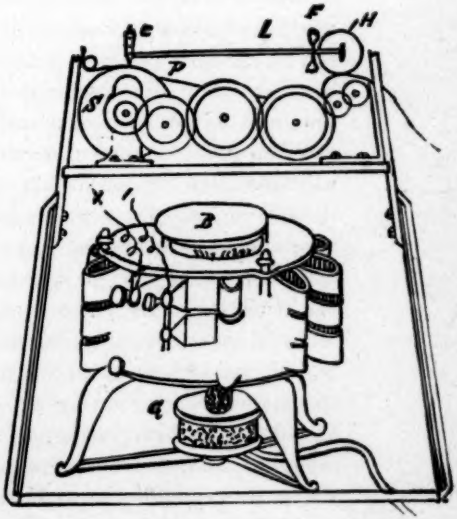


Fig: 7.

Fig: 8.



movable surface or strip of paper; F, the fulcrum of the lever, and E its marker or stylus; T, the thermometer proper introduced into the circuit; X, the battery; C, the curve, and S, the brass drum over which the strip of paper (P) moves.

Having comprehended the principles, the action of this combination is obvious. If an electric current passes through the helix (H), the core (D) will be drawn into said helix, carrying with it the short end of the lever (L), to which it is attached. This movement naturally causes the marking end of the lever to make a still longer excursion in the opposite direction. Upon breaking the circuit, the attractive power of the helix is abolished, and the counter-action of the spring (s) returns the lever to its normal position.

The depth to which the core (D) is drawn into the helix (H) being dependent upon the strength of the current passing through the coils of wire, the excursions of the tracer or lever will also be great or small, according as the current is weak or strong.

The lever (L) is delicately made, and its fulcrum provided with jewel mountings. Its short end is connected with the core (D) by means of a universal joint, while its longer end has inserted in it a silver stylus reaching to the surface of the traveling paper. The latter moves over a brass drum forming a portion of the circuit. The strip of paper passing over the brass cylinder, having been saturated with a solution of chloride of sodium, pyrogallic acid, and ferrocyanide of potassium, the instrument is complete.

When this combination is in operation, a current of electricity will pass from one pole of the battery to the binding-post (A) of the thermometer proper, through the substance in the vulcanite tube to emerge at binding-post (B); thence through the helix to the lever, along this to the silver stylus; thence through the moistened paper and brass cylinder to the other pole of the battery—thus completing the circuit. Upon the application of varying degrees of heat to the thermometer proper, the resistance the current meets with during its course will be varied in precise accordance with the various changes of temperature. This waxing and waning current will now pass through the helix, and by the latter's peculiar action produce to and fro motions in the lever, passing, at the same time, through the lever and chemically

prepared paper, and producing as it passes a double chemical decomposition upon the paper; one of which decompositions renders the development of friction, during the movements of the lever, so slight as to be imperceptible; the second decomposition producing a change in color upon the paper, corresponding to the movements of the stylus, and affecting no larger surface than it covers, thus obviating the additional friction accompanying the use of an ordinary marker.

From this description you will understand that the lever is moved backward and forward by a difference in the attractive power exerted by the helix, this in turn being dependent upon the strength of the current, which has already passed through the thermometer proper, and there been moulded into electric waves corresponding to the heat waves; the motion of the lever being facilitated by the lubricating action of the current, as the result of one of the chemical decompositions during its passage through the chemically moistened paper; while the other decomposition causes a discoloration, and thus produces a mark corresponding in outline to the movements of the lever. This mark will, therefore, form an irregular line, whose sinuosities will give a graphic representation of the heat variations. This apparatus is extremely sensitive and can be made to record 1-100 of a degree.

Now, after marking upon our strip of paper the minimum and maximum points representing respectively 90° and 110°, it becomes a very easy matter to determine the degree of heat represented by any point lying within this range. This is accomplished by dividing the intervening space into any number of equal parts, when any one of these divisions will represent a degree or any part of a degree, according to the number of divisions. These horizontal lines may be placed at such distances from each other as to represent 1-10 of a degree. Having provided the traveling paper with a uniform speed, it also becomes an easy matter to determine the time represented by any given distance upon its surface; for, supposing a certain amount of paper passes a given point in the instrument in one hour, to determine the amount passing the same point in five minutes, it is only

necessary to draw vertical lines dividing this distance into twelve equal parts, each one of these will then represent five minutes.

After determining upon the principles it becomes very easy to work up the details that would place the instrument in a convenient form for manufacture and use. These may be seen, as applied, in figs. 7 and 8. Fig. 7 is a front elevation of the complete thermograph.

It consists of a cast-iron case having two departments, one for the recording mechanism and actuating clock movement, the other for the battery. In the upper part of the front there is a circular depression for the reception of the thermometer proper or perceiving portion of the instrument when not in use.

This is held in place by means of two little catches, one on either side, as seen in the figure. On both sides of this are the binding posts for the reception of the wires leading from the thermometer proper when the latter is in position in the axilla. The open work in the lower portion is intended for the ingress of air and egress of gases. Fig. 8 is an interior elevation with the front removed; above is seen the recording mechanism, and below the thermo-electric battery. This form of battery gives a continuous and unvarying current, requires no cleaning or recharging, and costs but little to run, hence it is the most available source from which to derive the current; the heat for operating it may be supplied by either an alcohol lamp or a gas-burner. Not only is it possible with this instrument to procure a continuous curve denoting the constant febrile condition of a subject, but, with the addition of certain accessories now in process of construction, and as suggested by Prof. Mayer, of the University of Technology, Hoboken, and Dr. Toner, of Washington, we may be able to procure, on the same strip of paper, at the same time and under similar conditions, a sphygmographic and a respiratory curve; thus enabling pathologists, therapeutists, physiologists, and, in fact, general practitioners, to study the inter-relationship of these three cardinal symptoms under various modifying circumstances. These are the *possibilities*, but when we drift into the *probabilities*, we see in prospective the addition of that which will also furnish a moisture curve. Of the advantages of the graphic method as applied to medicine, I need hardly speak. It

already promises for medicine what it has accomplished in physics.

Every physicist adores such familiar names as Leon Scott and Dr. Clarence Blake, to whom we are indebted for the application of the graphic method to the science of acoustics, through the medium of the phonautographs invented by themselves.

To the experimental therapeutist this instrument is of incalculable value, as affording a means of determining the precise character of the temperature changes under the administration of various therapeutic agents in different sized doses and modes of exhibition.

The experimental physiologist will find in it that which will materially facilitate accurate observation in his field. And the advantages accruing from its application in pathological investigations, and the possibility of thus elucidating hitherto obscure phenomena, must be patent to every one. An instrument of so much value as an aid to observations in these three important branches of scientific medicine, needs no further lauding; but I cannot draw my paper to a close without setting forth the mode of application and the advantages attending its use in every day practice.

Take, for example, a suspected case of typhoid fever, experience and experimentation with the thermograph having already revealed a characteristic *minor* wave curve for typhoid fever. The physician is summoned. Upon arriving he applies his thermograph in the following manner: First, the perceiving portion, as seen in fig. 4, is fastened in the axilla by means of two elastic bands attached to the handles H H, one passing around the trunk, the other over the shoulder. Next, two fine and flexible silk covered wires are led from the binding-posts A B, fig. 4, to the binding-posts B B, of fig. 7, the latter having been previously placed upon a stand at the head of the patient's bed.

The wires, of course, are of sufficient length to admit of any degree of motion on the part of the patient without interfering with the position of the recorder. The instrument will now be ready for use, and, upon starting the battery, it will continue in operation for any desired number of days, with little or no attention outside of winding and replenishing with new rolls of paper.

The first benefit to be derived from its use in such a case, consists in the ability to determine upon a diagnosis much earlier than would ordinarily be possible; second, the physician is furnished with a permanent record of the condition of his patient from hour to hour and day to-day; third, the slightest modification or variation by reason of an exposure, the exhibition of prescribed remedies at given hours, or the ingestion of prescribed food during the day, will be revealed to the physician when he makes his evening visit, thus affording him from time to time, a more definite idea of the immediate effect, good or bad, of his treatment; fourth, it will give warning of danger from collapse during the crisis before it could be detected in any other way; fifth, the physician is provided with a means of leaving more definite directions with the attendant or nurse, *e. g.*, he will be able to say that "should the curve assume such or such a character, or the line rise to this or that point, you may discontinue this, that, or the other remedy, and proceed to exhibit *this*, according to the directions; or, should such and such a thing take place it will indicate an emergency calling for this, that, or the other measure."

The science of meteorology, also, will find in the thermograph an instrument it has long felt the need of. Never before has there been invented an instrument capable of furnishing a curve representing the constant temperature of the atmosphere. To be sure, there are two or three instruments in the possession of the United States Weather Department at Washington, constructed upon an entirely different principle, which automatically produce a continuous curve, but the latter is only by reason of the velocity with which the cylinder revolves, besides, they are of an exceedingly complicated nature, cumbersome, and *very* expensive.

The simplicity and inexpensiveness (it will cost about $50) of the thermograph, places it within the reach of almost every physician, and will enable the United States Weather Department to furnish one or more of them to every one of its substations.

This, gentlemen, is the instrument I have chosen to dignify with the title of *Thermograph*, and which I have lately placed in

the hands of Aloe & Hernstein to manufacture for the use of the medical profession.

With its introduction, I predict the dawn of a new era in medicine, marked by progress equal to that accompanying the introduction of the sphygmograph, myograph, cardiograph, and other important instruments of a similar character.

[Condensed from a paper read before the El Paso County Medical Society, Colorado Springs, Colorado.—*Rocky Mountain Medical Review.*]

A COMMITTEE has been appointed by the New York Academy of Medicine, consisting of Drs. H. G. Piffard, F. R. Sturgis and G. H. Fox, to investigate the extent to which leprosy prevails in the United States. We are glad to note that this subject is attracting the attention which it deserves. A committee of the American Dermatological Association, a national body, has had this subject in charge for several years and has regularly published the statistics which it has laboriously accumulated. Its chairman is Prof. James C. White, of Boston, the eminent dermatologist of Harvard University, and probably the oldest dermatologist in this country. Physicians knowing of the existence of lepers in any part of the United States, are requested to communicate with these gentlemen. The address of Prof. White is No. 10 Park Square, Boston, Mass.

COOK COUNTY HOSPITAL.—On April 1, Dr. G. F. Bradley was put in charge of the Medical wards, replacing Dr. B. C. Gudden. Dr. L. L. McArthur became House Surgeon, taking the place formerly occupied by Dr. W. P. Verity. Dr. B. C. Meacher is first assistant to Dr. McArthur, Dr. H. Kendall occupies the same position on the Medical side.

Summary.

Collaborators:

DR. L. W. CASE, DR. R. TILLEY,
DR. BYRON W. GRIFFIN, DR. W. L. DORLAND,
DR. H. D. VALIN.

PRACTICAL MEDICINE.

PROGRESS OF MEDICINE IN THE WESTERN STATES.

Dr. R. W. Erwin, Bay City, Michigan, gives an interesting account of a rhino-plastic operation performed by him in 1879. The new nose thus formed looks much like the natural organ, at least in the cut, and an interesting fact is that the smell, absent for years, was also restored.

The points of most interest derived from the case are:

"*First.* The entire structure should come from the forehead without regard to hair.

"*Second.* It should be large enough, especially in the vertical diameter, to admit of leaving the pedicle for several months undivided. The column for the septum must be long, else it will continue to draw down the tip. The leaving the pedicle attached does more than anything else to prevent the organ from becoming flat. While left it will be necessary to use a little pressure over it to prevent retraction. Court plaster will do, and may be applied by the patient himself. Should the patient be unwilling to exercise this care it would be better to divide the pedicle as customary.

"*Third.* Long after the healing, a compress on each side of the

nose should be worn part of the time (nights will do) to insure symmetry and permanency of shape.

"*Fourth.* No skin should be wasted in preparing the parts for the reception of the flap, no matter how small. It should be dissected up, and turned over to form a partial cover for the exposed raw surface beneath the bridge."—*N. Y. Med. Record*, Feb. 12, 1881.

QUARANTINE IN DIPHTHERIA.

Dr. A. T. Conley, of Cannon Falls, Minnesota, writes to the *Medical Record*, February 19: Our village and surrounding country have just passed through the worst epidemic (of diphtheria) ever known in these parts.

After careful study of the disease I have become convinced that we cannot find the specific cause of diphtheria in the effluvia of decaying vegetable or animal matter, conveyed either through air or water, for this reason: We have had, so far, a much more than ordinarily severe winter, not a single thaw since the last of October, the mercury most of the time below zero, and yet, perhaps, Minnesota never suffered so severely from diphtheria. I believe medical men will agree with me when I say that the most malignant epidemics of diphtheria are to be found in the Northern States *and in the winter.*

How can this be accounted for by the advocates of the theory that the specific cause can be found in the decomposition of vegetable or animal matter, when no such decomposition is taking place? There may be such a thing as spontaneous diphtheria, but this I think not more likely than spontaneous small-pox. I believe, for children, diphtheria is as contagious as small-pox.

As soon as diphtheria appeared in our vicinity, we had a competent sanitary committee appointed who visited every house and examined into all sources of filth, and our village was put into the best sanitary condition possible, and yet the disease has carried off twenty-two of our children in the dead of winter. I have further noticed that filthy families have suffered no more than the cleanest; that families who lived in the immediate vicinity of manure piles suffered no more than those who were far removed from such sources of contamination.

I believe we have only succeeded in getting rid of the plague by the strictest quarantine, closing all schools and churches, and prohibiting public gatherings of all kinds, and allowing only physicians and nurses to visit the sick; the village paying a man to take orders and deliver everything needed by families where the disease existed, at the gate, and after the disease subsided, thoroughly disinfecting and cleaning up. In short, treat it the same as small-pox. I believe I can trace every case, and account for it by contagion solely, in our village.

Now, while I am a strict believer in the laws of hygiene, and that cleanliness is next to godliness, and that towns and cities cannot be too strict in enforcing all laws for the removal of all sources of filth, still they must go farther in dealing with diphtheria, and enforce strict quarantine, and the sooner medical men are united on this point the sooner will diphtheria lose much of its formidableness.

NASAL CATARRH.—Three Cases, with Treatment. By B. T. Mouser, M.D., San Francisco.

H. B., æt. 14, exposed in occupation to constant inhalation of fine emery. Patient called on me in April (1880), complaining of offensive breath, occasional headaches and epistaxis. The fossæ dry and a lack of secretion, epiphora caused by closure of the punctæ lachrymalis. On examination anteriorly with nasal speculum and posteriorly with small mirror, much after the style commonly used in laryngeal examinations, the fossæ are found to be roomy, pituitary membrane dry and lacking that glistening appearance seen when there is sufficient mucus. On the posterior aspect of the septum and margin of the turbinated bones a varying amount of thin, white crusts are seen, which it is impossible for patient to free himself of, by hawking down the throat or blowing the nose. Expired air is very offensive, so much so that the disagreeable odor is noticed immediately on patient's entering the room. Sense of olfaction so thoroughly blunted that this most obnoxious symptom of the disease is not apparent to himself, but is often mentioned by his friends and relatives. The punctæ lachrymalis being opened, after the lapse of three or four days all indications of epiphora disappeared; it not being

necessary to dilate the canaliculi or sacs. Nasal douche was used for many months, and application of the numerous disinfectants made—carbolic acid and glycerine, permanganate of potash, salicylic acid—all proving of no avail. Pellets of cotton-wool, saturated with iodoform, carbolic acid and vaseline, were placed in the superior meatus from behind, and removed every second day. Iodoform acts on the pituitary membrane as a tonic and stimulant, and while it is a disinfectant, its unpleasant odor is disguised by the remaining two ingredients. After the removal of each pellet, the full expanse of pituitary membrane was thoroughly washed with a spray of the ten per cent. boracic acid solution. During the first month of treatment it was frequently found necessary to remove some deposits of incrustation on the turbinated bones by means of brush introduced into the posterior nares.

For some time the patient has been free from headaches and epistaxis, the offensiveness of expired air is not apparent to members of his family, and during the last two months the most thorough examinations have not revealed any fetid and tenacious crusts.

Case II.—R. B., æt. 50, has had considerable discharge from both nares for some time, and other disagreeable symptoms of an attack of chronic coryza; sense of olfaction augmented, and respiration through nares becoming more and more difficult; speech affected with a nasal twang; expired air not offensive. On microscopic examination, the nares were found occluded with a thick, semi-gelatinous substance; this was loosened with a spray of carbolic, boracic acid and diluted glycerine. After thorough cleansing, the right naris was found to be closed by a shining, gelatinous body, movable with a probe, and working its passage further on into the meatus upon sharp and violent expiration; the left naris being closed with the finger. Left naris posteriorily presented shining spots in middle and inferior meatuses. Pharyngitis sicca well marked. I removed two polypi, each the size of a large bean, from middle and inferior meatuses of left side, by means of wire écraseur introduced anteriorly; bleeding slight and pain moderate; base of each pedicle burnt with galvano-cautery, pellets of cotton wool

saturated with olive oil, inserted and held in position by piece of dry cotton. Patient returned on second day much relieved as to difficulty of breathing, pituitary membrane of left side being considerably swollen, in consequence of the cauterization, but allowing easy respiration. The seventh day after the first operation, I removed a large polypus from inferior meatus of right side, using the écraseur as before. The écraseur was pushed through the inferior meatus from in front until it struck the wall of the pharynx, the ordinary laryngeal forceps introduced through the mouth, and the wire noose enlarged and slipped over the polypus; laryngeal forceps then removed, the pedicle crushed, and the growth removed anteriorly; base of pedicle cauterized as before. This polypus was three quarters of an inch in length and width, and of proportionate thickness, with a pedicle half an inch in length, but the latter I imagine was somewhat elongated by traction of the instrument. Cotton wool, saturated with oil, inserted as after former operations, the left naris now being open; on second day, cotton pellet removed. Slight congestion of membrane of this side, that of the left having subsided.

After a lapse of two months, patient is entirely free from trouble; pharyngitis sicca is disappearing under use of mild astringent applications, and the return of free respiration by the nares. Patient using iodide of potash daily in small doses, in order to promote a healthy action of pituitary membrane.

Case III. C. W., æt. 34; has suffered from chronic coryza for many years, with loss of sense of smell; headaches so severe and prolonged that life has become a burden. Examination per specula and rhinoscopic, shows general hypertrophy of mucous membrane, both nares being alternately occluded; the inferior turbinated bones being much enlarged and encroaching upon the septum, secretions are often so packed between these swellings of the membrane that forcible injections of water are made in order to give relief. Patient has used nitrate of silver in solution, lunar caustic and, in addition, every patent (proprietary) preparation in the country, but with no relief.

After repeated burnings with galvano-cautery, I found that before the inflammation following one application had subsided

the remainder of the membrane on that side of the nose was much aggravated by the treatment. I then concluded to do some bold surgery, and with a strong pair of scissors cut off a considerable quantity of the middle and inferior turbinated bones, cauterizing the raw surface after the hæmorrhage had subsided. Each naris was operated on separately with an interval of ten days. Patient suffering after each operation, he was confined to his bed for forty-eight hours, and kept under the influence of opiates; the nares being alternately stuffed with oiled cotton-wool. Patient now having greater freedom of respiration, feels something of the pleasure of life, and does not think the accumulation of mucus any inconvenience. The cicatrized portion of membrane has not shown any tendency to hypertrophy since the subsidence of inflammation immediately following the cauterization.

These three cases, to my mind, are interesting as showing well-marked results and complications of acute and chronic coryza; and the perfect failure of treatment with many vaunted infallible remedies of the day. While our treatment of nasal catarrh is often unsatisfactory, it is nevertheless our duty to give our patients some careful attention, and be cautious in advising the use of quack remedies which often are not harmless.—*San Francisco Western Lancet*, January, 1881.

DR. E. C. SEGUIN, in *Archives of Medicine*, Vol. 4, No. 1, August, 1880, contributes to the symptomatology of Uræmia, by an interesting summary of two cases in which occipital headache was so localized and persistent as to give rise to a strong suspicion of organic disease of the cerebellum, and in one (No. 2) a positive conclusion was only reached by means of a post mortem examination. Both cases appear to be cases of contracted kidneys.

Both patients were adults aged thirty-six and forty-seven. Both had suffered more or less from chronic headache of the migraine type. At a given period the headache became transformed into a localized occipital *pain* very different from the former attacks. This peculiar headache was distinctly paroxysmal, but not at all periodical. Both cases were accompanied by nausea. In neither was their suspicion of syphilis. Case No. 1

made relatively clearer by a previous history of convulsions and albuminuria four years ago; other symptoms of renal disease not marked; no ophthalmoscopic lesion; no dyspepsia; heart normal. Urine contains five per cent. albumen; sp. gr. 1018. Hyaline and granular casts.

Case 2 died in comatose state. No convulsions or paralytic symptoms having shown themselves though the pain had extended to sixth cervical vertebra. Urine examined four days before death gave ten per cent. albumen with numerous hyaline and granular casts. Autopsy showed extensive granular disease; cerebellum and brain in normal condition.

While in some respects the story of these cases is imperfect, and Dr. S. particularly regrets lack of observation upon the quantity of urine passed and the state of arterial tension, yet he is inclined to believe that their publication may serve to render more accurate the diagnosis of occipital headache and illustrate the utility of critically examining the urine in cases of any degree of obscurity, especially as occipital headache is scarcely mentioned as a symptom of uræmia.

RESECTION OF TWO METERS OF THE SMALL INTESTINE, WITH RECOVERY. (Reported before the Academie de Médecine, January 25, 1881, by Dr. Koeberlé of Strasbourg.)

Patient, Miss K., age twenty-two, never had any disease nor indispositions, except colics, of which she has suffered at different times for the last two or three years. These had returned more severe and more frequent last year, and in October (1880), severe symptoms of intestinal strangulation recurred twice, fifteen days apart. These were relieved in both circumstances by clysters. Ever since, she suffered with continuous and intense colics, which gave her no rest, day or night, and which could hardly be subdued by hypodermics of morphia. Three points of intestinal obstruction could be inferred from the successive colics, but a positive diagnosis of the lesions could not be made.

I performed gastrotomy, November 27. There were four narrowings, more and more marked, the last being hardly .004 m. The first two were .14 m. distant. These strictures involved two meters of the small intestine, all of which were amputated

between two ligatures at each end, and twelve ligatures were applied to the mesenteric vessels. The ligatures from the two free ends of the intestine were tied together in such a manner as to lay the sides opposite to the mesentery in opposition, the most favorable condition for enterectomy, and they were attached to the fibrous tissue of the *linea alba* through a suture which retained them in contact with the peritoneum at the inferior angle of the incision. The ligatures of the mesentery were brought out at the superior angle of the abdominal incision, where they were retained, together with the ligatures of the intestine, in a fixed position. The superior part of the wound was partially closed. Enterotomy was made the third day. The ligatures and sloughs came off from the twelfth to the fifteenth day. First alvine discharge took place after twenty days. On the twenty-fifth day the communication with the intestine was almost closed, and six weeks after the operation, the external wound was also closed and healed. The patient is feeling quite well, and experiences no digestive disturbance.

The temperature rose above 38° C. once on the third day. The operation lasted more than three hours, and was not made antiseptically. The peritoneal cavity was simply cleaned by towels which imbibed the serum as low down as the pelvic cavity. Patient was fed, after the second day, with solid substantial aliments (bread, meat and eggs), with an amount of liquid strictly sufficient to insure digestion. Drink was administered by rectal injections. She took thus, in the space of twenty days, seventy injections of pure water which were all retained.

Conclusions from this and similar operations:

1. Resection of the small intestine can be made for a considerably long portion, two, and even more, meters, without disturbing the digestive system in any appreciable manner.

2. Made under favorable conditions, this may be considered a perfectly appropriate operation.

3. Resection can be made: 1. Either by a direct operation, sewing the two ends together, and immediately closing the external wound; 2. Or by making an incomplete apposition by sutures of the ends of the intestine, combined with an artificial anus. The second and the third are the safest procedures.

4. Resection of fibrous or cicatricial strictures, which are probably more common than we are aware, is likely to be followed by a permanent recovery. So also the resection of epitheliomas. On the contrary, resection for cancerous obstructions gives but a temporary relief, more or less marked, on account of the return of the affection, its metastasis, and the progressive degenerations of the lymphatics.

5. Keeping the intestine closed after the operation, as I did in this case, exempts the patient from any alvine discharge for many days, until the adhesions are sufficiently strong. On the other hand, the abdomen remains a little distended, thus preventing the entrance of air or of septic liquids into the peritoneal cavity. Feeding the patient solid food reduces the fæces to their minimum, and leaves no depressing result.

6. Clysters relieve the thirst, diminish the fluids in the small intestine, and free the patient from much annoyance.

DR. ED. LABBÉ ON THE ETIOLOGY OF PHTHISIS. (*L' Union Médicale*, February 1, 1881.—Abstract.)

I might cite numberless cases of acquired tuberculosis. I would simply need peruse a list of the various diseases; thus, diabetes, cirrhosis, though more rarely, and other chronic diseases may be complicated with tuberculosis. All the various trades which oblige so many wretched beings to live in confined atmospheres, far from daylight, as in mines; those which expose one to breathe metallic or other sorts of dusts; furnish a large proportion of cases of that disease. Pregnancy, lactation, whooping cough, measles, prolonged dyspepsia, inanition from lesions of the œsophagus, can lead to tuberculosis. The rheumatic, cancerous, and syphilitic diatheses, are often complicated by tuberculosis, which induces their fatal termination. If all these are real causes, if we admit the identity of these various forms of tuberculosis, it may as well be granted that the constitutional disease scrofula, has a still more powerful predisposition to induce tuberculosis; scrofulous diseases, at an early period, are already superimposed on an impaired constitution. No difference, clinical or histological, exists between pulmonary phthisis of a scrofulous origin and other forms of phthisis.

The tissue in which the tuberculosis has developed may impart

to the morbid process a different course; in this manner, pulmonary phthisis progresses more rapidly than a tuberculosis localized in the testicle, or on the skin, yet the tubercular lesion is the same. It is useless to insist on the greater risk of dissemination from highly vascular organs, crowded with lymphatics; according to Laënnec, the softening of a tubercle is the most frequent cause of a general dissemination of the disease. We may add, that the rapidity of the softening and dissemination depends also on the exhaustion of the patient. To recapitulate: Let tuberculosis be local or general, it is always one and the same disease. The only specific character which could be ascribed to it would be its contagiousness, as is probable; but this would become the strongest argument against the diathetic character of tuberculosis.

As to hereditary descent, there is no doubt that a phthisical parent may start a phthisical progeny, but how few hereditary cases compare with those in which the disease is acquired! Not one in ten. Among the consumptive in my service, there is one in eight. We may refer the diseases to indirect inheritance (in this sense that a constitution congenitally weakened is more exposed to tuberculosis), but not the sort of inheritance observed in gout, in the *rheumic* diathesis (*dartre*), or in scrofulosis.

Scrofula, on the contrary, is most always inherited, and seldom acquired. Not a disease in itself, it is a predisposition to a group of maladies, differing by their seat and by their course, and identical as to their origin. In the same manner as one is a victim of the gouty diathesis before he has had gout, so one is scrofulous long before suffering from scrofulous swellings. But one is not tuberculous, because suffering from a dyspepsia, diabetes, or measles, though these might start pulmonary tuberculosis. Phthisis may terminate almost all the scrofulous affections, but it could not generate scrofula. Granting for a moment that the anatomo-pathological characteristics of scrofulous diseases consist in the tubercular granulation, the same difference remains between the diathesis (scrofula) and the disease (tuberculosis), as between the *rheumic* diathesis and eczema. Rheumic, scrofulous or artificial eczema, is always much alike; borrowing its difference from its etiology; the eczematous lesion is only one of the elements of the disease.

TRICHINOSIS IN FRANCE.—Dr. Laboulbène, begins thus his relation of the first cases of *trichinosis* observed in France, (read before the *Académie*, Feb. 15). The *Académie* has certainly been impressed by the numerous cases of *trichinosis* observed in the lower animals and in men in later times, in many countries of Europe and in France. Newspapers from Sweden, Spain and America mention the discovery of *trichinæ* in many localities in which they had not been found anteriorly. Follow these quotations:

"Trichinosis, which, till lately, had been chiefly observed in the north of Europe, England and Germany, as well as in America, appeared some time ago in Catalonia, and other provinces in Spain, where it caused a natural alarm."—(*La Independencia Medica*, March, 1878.)

A dispatch from Dingelstad, Dec. 5, 1880, to the *Gazette de l'Allemagne du Nord*, says: "An epidemic of *trichinosis* is in progress here. A great many persons are down with it, and already several have died."

The report of the Health Department of Massachusetts for 1880 contains the following from Mr. Billings, a veterinary surgeon of Boston: "Out of 2,701 hogs examined in the space of five months, 154 contained *trichinæ*, an enormous proportion. These hogs came from different points, mostly from the Western States. Three out of 83 hogs' tongues freshly prepared, contained trichinæ."

In *Lyon Médical*, Jan. 2, 1881, Dr. Cazeneuve mentioned that Mr. Le Clerc, inspector, found trichinæ in slices of pork shipped from New York, which reached Lyon, Nov. 20, 1880. Six per cent. of the slices examined were infected with *trichinæ*.

Mr. Bascou, a veterinary inspector of Paris has found *trichinæ* in American pork.

The first epidemic of *trichinosis* in France, scientifically investigated, was one at Crépy-en-Valois, in 1878. The diseased hog had been reared in France; 21 persons ate of its flesh; 17 fell sick, and but one died. A long discussion in the Academy brought out the fact that much more severe epidemics have occurred formerly, which were called *acrodynia*, or other names. For *prophylaxis*, pork should be sliced thin, and heated to 75° C., thus destroying the *trichinæ*.

Items.

RUSH MEDICAL COLLEGE.—The Thirty eighth Annual Commencement of Rush College occurred on Tuesday afternoon, February 22, at Central Music Hall. This event marked the close of the most prosperous year of the life of the college. The number of the graduates receiving the ordinary degree was 170. This is, we believe, the largest class ever graduated by any college west of Philadelphia. In addition to the ordinary degrees, the honorary degree of Doctor of Medicine was conferred upon Dr. W. W. Allport, the well known dentist of Chicago, in consideration of his labors for the elevation of the profession of dentistry to a specialty of medicine; and upon Dr. S. D. Jacobson, President of the Medical Board of Cook County Hospital, as a testimonial to his worth as a clinical teacher and as a medical gentleman.

The exercises of the Commencement were lengthy and interesting. The audience filled the Music Hall to overflowing. Prayer was offered by Bishop Cheney. The Secretary of the college, Prof. Etheridge, read his report of the work of the college year. The statistical information of the report was as follows: There had been "16 special students, 170 graduates and 319 undergraduate students—total, 505." Of the class graduated, 84 per centum held either literary degrees or teacher's certificates from County Superintendents of Schools. Of the class, 33 had attended the college three years, and 146 had taken two courses of lectures in the college. Five years ago, the class contained only 3 three-years men, and only 36 had spent their two years in this institution.

The degrees were formally conferred by President Allen. A

brief and sensible "Valedictory for the Class" was delivered by Dr. C. T. Clark, after which a very eloquent and impressive address to the graduates was delivered by Prof. DeLaskie Miller.

The doctorate address was then delivered by President Allen. It considered the history and progress of Rush Medical College from its foundation to the present time. It compared this school with others in this country and abroad, and was, in general, a discussion of the question of medical colleges and medical college progress in many of its bearings and aspects.

The occasion was signalized by the President appearing in black gown and Oxford cap.

After the Commencement exercises were over, the Alumni Association held a business meeting. The following officers were elected for the ensuing year: President, Dr. J. L. Whitley, of Osage, Iowa; First Vice President, Dr. J. B. Hamilton, of Washington, D. C.; Second Vice President, Dr. Philip Leach, Class of 1881; Secretary and Treasurer, Dr. F. A. Emmons; Executive Committee, Drs. J. E. Owens, W. T. Belfield and Otto T. Freer.

In the evening the Faculty of the college entertained the Alumni and invited guests at a banquet at the Tremont House.

The toasts were as follows:

1. *Clinical Medicine*, Prof. D. T. Nelson.
"Laying his hand upon many a heart,
Had healed it forever."

2. *Medicine and Dentistry*, Dr. W. W. Allport.
"Sure the shovel and tongs
To each other belongs."

3. *The Sisters of Medicine*, Hon. Geo. Gardner.
"And loved to plead, lament and sue."

4. *The Profession of Medicine*, Dr. Norman Bridge.
" * * * but when ill indeed,
E'en dismissing the doctor don't always succeed."

5. *The First Dose of Medicine*, Dr. C. S. Shepard, Of the Class of 1881.
"And so he was reduced at last,
To practice in a country town."

6. *Medicine and Civil Service Reform*, Dr. F. C. Henrotin.
"At this the Mayor and Corporation
Quaked with a mighty consternation."

7. *Medicine in Illinois*, Dr. Geo. Wheeler Jones,
Of Danville, Ill.

"Who comes and asks you how's your liver,
And where you ache, and whether you shiver."

8. *Alma Mater*, Prof. Henry M. Lyman.

"And gladly wolde she lerne, and gladly teche."

Address of the President of the Alumni Association,
Dr. Solon Marks, of Wisconsin.

AN APPEAL TO THE MEDICAL PROFESSION.—Although the *Index Medicus*, during its second year, has not been so great a loss financially as in its first, its actual expenses are not yet fully covered by subscription, the mass of material and the labor involved making it a far more costly publication than any similar periodical issue. The value of the work has, however, been so thoroughly recognized by those who have practically tested it that a number of American subscribers have volunteered, in addition to their subscription, to contribute to a guarantee fund, for the purpose of securing the publisher against further loss, and, at the same time, to give the medical profession another opportunity to place the publication upon a self-supporting basis. Thus it has been decided to give it another year's trial, and it is hoped that the example set by an appreciative and generous minority will not prove fruitless. Only 200 more subscriptions are required to permanently establish a publication which is of incalculable benefit to the whole medical world. Even where individual subscriptions cannot be afforded, some personal influence among the medical societies and libraries, a few words of earnest commendation to medical friends, or through the medical press, would accomplish the desired end.

It is almost unnecessary to say that the suspension of the *Index* would prove an irreparable loss to the entire profession. It is doubtful whether the publication could ever be revived under similar favorable conditions, viz.:

The vast material and admirable system at the National Medical Library, in Washington.

The capacity of the editors, equaled only by their personal sacrifice and devotion to their laborious task.

A publisher who, after all his discouragement and loss, again offers his services without expecting any remuneration until the enterprise is established.

It would be presumptuous on the part of the publisher to dwell on the merits of the work itself when the most prominent men of the profession have given it their hearty support and unqualified commendation. But he should be permitted, on this very ground, to ask every one interested in the promotion of medical science and literature to aid the undertaking, either in the way of individual subscription or personal influence.

The *Index Medicus* is a monthly classified record of the current medical literature of the world, compiled under the supervision of Dr. John S. Billings, Surgeon, U. S. A., and Dr. Robert Fletcher, M.R.C.S., England. It records the titles of all new publications in medicine, surgery and the collateral branches received during the preceding month. These are classed under subject-headings, and followed by the titles of valuable original articles upon the same subject, found, during the like period, in medical journals and transactions of medical societies. The periodicals thus indexed comprise all current medical journals and transactions of value, so far as they can be obtained.

The *Index Medicus* is published monthly, and supplements all the leading medical journals (American and foreign) as a current guide and general index to all.

Subscription price per annum, postage prepaid, for United States and Canada, $6. *Sample copies sent free on application.* The addresses of probable subscribers are desired from the friends of the enterprise. Address F. Leypoldt, publisher, 13 and 15 Park Row, New York.

Subscriptions abroad will be received by Trübner & Co., 57 Ludgate Hill, London; J. H. Baillière et Fils, Rue Hautefeuille, 19, Paris; K. F. Köhler, Poststrasse, 16, Leipzig.

AMERICAN MEDICAL ASSOCIATION.—The thirty-second annual session will be held in Richmond, Va., on Tuesday, Wednesday, Thursday, and Friday, May 3, 4, 5, 6, 1881, commencing on Tuesday at 11 A. M.

"The delegates shall receive their appointment from such per-

manently organized State Medical Societies as are recognized by *representation in their respective State Societies*, and from the Medical Department of the Army and Navy, and the Marine Hospital Service of the United States."

"Each State, County, and District Medical Society entitled to representation shall have the privilege of sending to the Association one delegate for every ten of its regular resident members, and one for every additional fraction of more than half that number: *Provided*, however, that the number of delegates for any particular State, territory, county, city, or town shall not exceed the ratio of one in ten of the resident physicians who may have signed the Code of Ethics of the Association."

Secretaries of Medical Societies as above designated are earnestly requested to forward, *at once*, lists of their delegates.

SECTIONS.—"The Chairmen of the several Sections shall prepare and read in the general sessions of the Association, papers on the advances and discoveries of the past year in the branches of science included in their respective Sections." * * * * —By-Laws, Art. II., Sec. 4.

Practice of Medicine, Materia Medica and Physiology.—Dr. Wm. Pepper, 1811 Spruce st., Philadelphia, Pa., Chairman; Dr. T. A. Ashby, Baltimore, Md., Secretary.

Obstetrics and Diseases of Women and Children.—Dr. Jas. R. Chadwick, cor. Marlborough and Clarendon sts., Boston, Mass., Chairman; Dr. Joseph Taber Johnson, Washington, D. C., Secretary.

Surgery and Anatomy.—Dr. Hunter McGuire, Richmond, Chairman; Dr. Duncan Eve, Nashville, Tenn., Secretary.

State Medicine.—Dr. Jas. T. Reeve, Appleton, Wis., Chairman; Dr. R. G. Jennings, Little Rock, Ark., Secretary.

Ophthalmology, Otology and Laryngology.—Dr. Dudley S. Reynolds, Louisville, Ky., Chairman; Dr. Swan M. Burnett, Washington, D. C., Secretary.

Diseases of Children.—Dr. A. Jacobi, 101 W. 34th st., New York, Chairman; Dr. T. M. Rotch, 77 Marlborough st., Boston, Mass., Secretary.

A member desiring to read a paper before any Section should forward the paper, or its *title*, and *length* (not to exceed twenty

minutes in reading), to the Chairman of the Committee of Arrangements at least one month before the meeting.—*By-Laws.*

Committee of Arrangements.—Dr. F. D. Cunningham, Richmond, Va., Chairman.

Amendment to the By-Laws offered by Dr. J. M. Keller, Ark.—In the election of Officers and the appointment of committees by this Association and its President, they shall be confined to members and delegates present at the meeting, except in the Committee of Arrangements, Climatology, and Credentials.

W. B. ATKINSON,
Permanent Secretary.

AN INTERESTING MORTALITY EXHIBIT.—The Health Department has compiled the following details from the record of deaths by phthisis pulmonalis in the city of Chicago for the year ending December, 1880. It is said to be the most complete abstract ever made up in the department:

Deaths by months: January, 67; February, 65; March, 93; April, 74; May, 60; June, 67; July, 66; August, 64; September, 61; October, 75; November, 56; December, 52—total, 800.

Occupations: Males—Actors, 3; artists, 1; bakers and confectioners, 2; barbers, 3; bell-maker, 1; blacksmiths, 10; book-binders, 3; boot and shoe makers, 9; brewers, 3; brass-finishers, 3; butchers, 6; cigar makers, 11; clerks and salesmen, 30; coopers, 5; cooks, 2; engineers and firemen, 5; farmers and gardeners 9; grocers, 5; gunsmiths, 2; hatters, 4; lawyers, 6; laborers, 75; lithographers, 2; machinists, 13; masons and bricklayers, 6; merchants, 20; moulders, 4; musicians, 2; peddlers, 2; packers, 2; painters. 10; physicians, 4; photographers, 1; plasterers 2; plumbers, 3; police, 1; painters, 17; porters, 5; priests, 2; sailors, 3; saloon-keepers, 9; stonecutters, 1; tailors, 20; tanners, 3; preachers, 4; tinsmiths, 5; telegraphers, 2; teamsters, 3; undertakers, 3; waiters, 8; woodworkers, 35; book-keepers, 15—total, 400.

Females—Dressmakers, 7; laundresses, 7; milliners, 2; seamstresses, 25; housewives, 110; tailoresses, 5; servants, 10; unknown, 35; under 15 years, 200—total, 400.

TREATMENT OF MEMBRANOUS SORE THROAT.—At a recent meeting of the Academy of Medicine of Paris, Dr. Viard made a communication on this subject. He considers that membranous sore throat is primarily a local affection, which does not become general for five or six days; during the first period the diphtheria may be cured by cauterization (*Medical Press and Circular*). During the last eighteen months he has had twenty-six cures out of twenty-eight cases. Wrapping his finger in a rough cloth he removes the false membrane, leaving in its place a bleeding surface; then he cauterizes with nitrate of silver; four or five such cauterizations neutralize the diphtheritic poison. General tonic treatment is employed at the same time.

PILOCARPINE: ITS GENERAL EFFECTS AND ITS ACTION IN SYPHILIS.—Dr. Lewin, of La Charité Hospital, Berlin, has been experimenting on the action of pilocarpine on the salivary and sudoriparous glands. In the course of three years and a half he has treated thirty-two patients affected with different forms of syphilide by subcutaneous injection of pilocarpine. Seventy-eight per cent. of the patients were cured. Of seven cases two were of serious form, and had resisted energetic mercurial treatment; the cure was incomplete, and it was necessary to have recourse to injections of corrosive sublimate to complete it. In five other cases the treatment had to be suspended on account of inter-current complications (endocarditis, hæmoptysis, collapse).

The patients who were cured by the aid of pilocarpine showed large condylomata, various exanthemata, pharyngeal lesions, one a gummatous periostitis, and one ulcer of the leg.

The mean duration of the treatment was eighty-four days. The dose injected each time was usually 15 milligrames. The cure would be shorter if patients would have daily injections; but as soon as amendment of the symptoms begins they require less and less frequent applications of the remedy.

Pilocarpine seems to prevent relapses with greater surety than mercury or vegetable depuratives. But in respect to facility of application, certainty of result, and rapidity of cure, this medication is inferior to injections of corrosive sublimate, and often leaves behind it extreme sensibility to the influences of tempera-

ture, which obliges patients, after the cure, to keep their room for some time for fear of arthritic and rheumatic troubles.

According to the experience of Lewin and others, pilocarpine and its salts act especially on the salivary and sudoriparous glands. The symptoms which its use may cause, and which may oblige us to suspend the treatment are, nausea, vomiting, cephalalgia, cramps, trembling of the hands, swelling of the submaxillary glands, weakness, loss of sleep, erysipelas of the face, and stomatitis.

HYDRORRHŒA GRAVIDARUM.—M. Stapfer, in a *Thèse de Paris*, has laboriously collected the materials that exist for arriving at some knowledge of this obscure subject (*Med. Times and Gazette*). The multitude of synonyms under which the symptoms have been described—dropsy of the womb, dropsy of the membranes, premature and spontaneous rupture of the membranes, false waters, metrorrhœa—indicate the different opinions that have been held. The name hydrorrhœa, M. Stapfer thinks, has been given to watery discharges resulting either from premature rupture of the membranes, from transudation of amniotic fluid, from rupture of a supernumerary ovum, from rupture of a cyst, from exudation from the uterine wall, from the decidua, the chorion, the amnion, the vessels or glands of the neck and body of the uterus. In the presence of such confusion, he thinks it impossible yet to frame a definition of the disease. From the evidence before him he comes to the following conclusions: The hydrorrhœa which appears in the early months of pregnancy, and which is the exception, seems only explicable by supposing the existence of a "*hydropérione*" between the decidua vera and decidua reflexa. That which comes on in the latter months results from a collection of fluid outside, or perhaps within, the chorion. This view Guillemeau and Mauriceau had been led to take by reasoning; it has been verified post mortem by Duclos. But it may possibly not hold good of every case. As to the origin of this fluid he can offer no hypothesis. The practical conclusions which he submits are the following: He thinks metrorrhœa (a word proposed by Chassinant) a better name than hydrorrhœa, because it indicates that the phenomenon has nothing in common with

the escape of the liquor amnii resulting from a premature rupture of the membranes. There are, perhaps, two forms of the disease—the one traumatic, the other catarrhal. It is very rare, and varies much in its clinical history. It is rarer the further the pregnancy is from term; but it has been observed as early as the fifth week. As a rule it interferes neither with the course of the pregnancy nor the development of the fœtus; but it may lead to abortion or to premature labor.

ŒSOPHAGISM.—Dr. Eloy concludes (*Gaz. Hebd.*) an elaborate paper on Œsophagism in these terms: As a result of the consideration of all the cases which we have cited, we come to the conclusion that the most efficacious means for combating this affection, when existing independently of all functional disturbance—that is, œsophagism from a nervous cause, whether local or general, are the employment of catheterism (with or without dilatation) as a mechanical agent, the hypodermic injection of morphia as an analgesic, and the bromide of potassium (either by the mouth or as an enema) as a moderator of the reflex power. Moreover, this last agent will facilitate catheterism, by imparting a greater toleration of the mucous membrane to the contact of instruments."—*Medical Times and Gazette.*

THE next annual meeting of the Illinois State Medical Society will be held in the city of Chicago, beginning on the 17th day of May next, and to continue during the following days till the business of the Society is accomplished. The committee of arrangements have secured the hall in the Methodist Church Block for the place of meeting, and hope that the attendance will be unusually large. All those expecting to read papers of any kind are requested to notify the chairman of the committee of arrangements, Dr. J. N. Hyde, of Chicago, at as early an hour as practicable. The profession in the city are requested to respond to the efforts of the committee toward making the forthcoming meeting as successful in a scientific and social point of view as is desired by all who are interested.

SOCIETY MEETINGS.

Chicago Medical Society—Mondays, April 4 and 18.
West Chicago Medical Society—Mondays, April 11 and 25.
Biological Society—Wednesday, April 6.

CLINICS.

MONDAY.

Eye and Ear Infirmary—2 p. m., Ophthalmological, by Prof. Holmes; 3 p. m., Otological, by Prof. Jones.
Mercy Hospital—2 p. m., Surgical, by Prof. Andrews.
Rush Medical College—2 p. m., Dermatological and Venereal, by Prof. Hyde.
Woman's Medical College—2 p. m., Dermatological and Venereal, by Prof. Maynard; 3 p. m., Diseases of the Chest, Prof. Ingals.

TUESDAY.

Cook County Hospital—2 to 4 p. m., Medical and Surgical Clinics.
Mercy Hospital—2 p. m., Medical, by Prof. Quine.

WEDNESDAY.

Chicago Medical College—2 p. m., Eye and Ear, by Prof. Jones.
Rush Medical College—2 p. m., Medical, by Dr. Bridge; 3 p. m., Ophthalmological and Otological, by Prof. Holmes; 3:30 to 4:30 p. m., Diseases of the Chest, by Dr. E. Fletcher Ingals.

THURSDAY.

Chicago Medical College—2 p. m., Gynæcological, by Prof. Jenks.
Rush Medical College—2 p. m., Diseases of Children, by Dr. Knox; 3 p. m., Diseases of the Nervous System, by Prof. Lyman.
Eye and Ear Infirmary—2 p. m., Ophthalmological, by Dr. Hotz.
Woman's Medical College—3 p. m., Surgical, by Prof. Owens.

FRIDAY.

Cook County Hospital—2 to 4 p. m., Medical and Surgical Clinics.
Mercy Hospital—2 p. m., Medical, by Prof. Davis.

SATURDAY.

Rush Medical College—2 p. m., Surgical, by Prof. Gunn; 3 p. m., Orthopœdic, by Prof. Owens.
Chicago Medical College—2 p. m., Surgical, by Prof. Isham; 3 p. m., Neurological, by Prof. Jewell.
Woman's Medical College—11 a. m., Ophthalmological, by Prof. Montgomery; 2 p. m., Gynæcological, by Prof. Fitch.

Daily Clinics, from 2 to 4 p. m., at the Central Free Dispensary, and at the South Side Dispensary.